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ABSTRACT

Focusing on problems, programs, and projects in college and adult reading, the papers in this volume were drawn from the eleventh annual meeting of the National Reading Conference held in 1961. The 29 papers are grouped into three sections, the first of which contains studies and theoretical papers that deal with reading speed and comprehension. Specific topics covered in this section include: speed, power, and comprehension; reading as linguistic behavior; mental content as a contributing and concomitant factor in reading; measurement of improvement in reading skill courses; and the future of rapid reading. The papers in the second section offer descriptions of reading programs actually in use throughout the United States. Among the specific program areas discussed are programed learning, closed circuit television, mass media, student attitudes, techniques for improving reading and learning achievement among incoming college freshmen, and vocabulary development. The third section offers papers dealing with projects and research in reading and includes discussions of the following topics: how misinterpretations of theory and research lead to errors in practice, refinement of a readability formula, the predictability of omissions in reading and listening, reading disability, and reading interests. The volume also contains a list of persons attending the conference. (FL)

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PROBLEMS, PROGRAMS, AND PROJECTS IN COLLEGE-ADULT READING

ELEVENTH YEARBOOK OF THE NATIONAL READING CONFERENCE

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PREFACE

The *Eleventh Yearbook of the National Reading Conference* contains the papers delivered at the eleventh annual meeting of the Conference held at Texas Christian University, in Fort Worth, on December 7-9, 1961. The various papers have been grouped in this Yearbook in three broad sections or categories: Problems in Reading Speed and Comprehension, Programs of Reading Improvement, and Projects and Research in Reading.

The comprehension of what is read has always held a central place in Conference discussions, together with the efficiency with which comprehension is attained. The relationships between reading speed and comprehension have been highlighted in a series of studies and theoretical papers presented in the first part of this yearbook, "Problems of Reading Speed and Comprehension". The great interest of the general public in speed reading makes this section particularly timely.

Reading programs actually in use throughout the country are described in the second part of the yearbook, "Programs of Reading Improvement". These have always been of interest to teachers of reading who wish to profit from the insights and experiences of their colleagues.

The third section, "Projects and Research in Reading," includes papers in the areas of readability, linguistics, readership, and personality, all of which are closely related aspects of reading. The Yearbook is concluded with the annual summary of research in college and adult reading and a critical analysis of some of the activities and emphases of the Conference during its existence. A list of the participants is appended at the end of the Yearbook.

E. P. B.
R. C. S.

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The Relationship Between Reading Rate and Comprehension

Earl F. Rankin, Jr.

Texas Christian University

Many varied opinions are held concerning the relationship between reading speed and comprehension. Some people maintain that in order to comprehend, one should read slowly with careful attention to each word. On the other hand, some authorities have stated that a fast rate of speed and good comprehension go together. Still others claim that reading speed and comprehension are not related because knowing one does not allow the prediction of the other. Surprisingly, some support can be found in the literature for each of these viewpoints. However, as we shall see, each viewpoint represents a simplification of a complex problem. Let us take a look at the research literature and see if we cannot gain some insight into the nature of this relationship.

There is widespread disagreement in the literature concerning the relationship between rate and comprehension. Blommers and Lindquist (2) reported finding correlations ranging from —.47 to .92 presented in the research literature on the problem. In an often-cited early study Judd (7) concluded that ". . . high rate and good quality are commonly related and that low rate and poor quality are commonly related." Gates (6) obtained a correlation of .84 between a composite rate score and a composite comprehension score based upon five reading tests. In contrast to these findings, King (8) found a correlation of —.47 between rate and comprehension. Such variable results appear to be a function of differences in reading materials, reader charactertistics, and testing procedures.

Reading Material Variables

The relationship found between rate and comprehension appears to depend, in part, upon whether or not speed and comprehension are tested on the same material. Tinker (16) obtained high correlations between rate and comprehension when comprehension and rate were tested on the same materials. Paterson and Tinker (10) found a correlation of .86 between comprehension and speed on the *Chapman-Cook Speed of Read-*

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ing Test, and Gates (6) found correlations ranging from .88 to .96 between speed and comprehension on the *Monroe Silent Reading Test.* When rate has been determined on one test and comprehension on another test, correlations of approximately .30 have been reported. (16) Low correlations between rate and comprehension scores based on different materials are difficult to interpret in the absence of information concerning correlations between rate scores and correlations between comprehension scores based on these materials. It may be that the different tests are simply not measuring the same thing.

Differences in the subject matter content of materials affect the relationship between reading speed and comprehension. Different correlations between rate and comprehension have been found in various subject matter areas. Thurstone (15) obtained correlations between rate and comprehension of .11 on physical science material, .42 on literary material, and .44 on social science material. Anderson and Dearborn (1) concluded that a negative relationship exists between reading speed and comprehension in the fields of science and mathematics.

Differences in the difficulty and familiarity of materials also affect the relationship between rate and comprehension. Tinker (16) reports progressively lower correlations between speed and comprehension as the difficulty of the material is increased. In addition, Tinker found the relationship to be particularly weak when the material called for an understanding of concepts depending upon a specialized background of experience. Evidence concerning the influence of familiarity of material upon this relationship was obtained by Eurich (4). Eurich found a stronger relationship between a pre-reading test of information and reading rate than he did between reading rate and a post-reading test of comprehension.

Thus, it appears that the rate-comprehension relationship depends upon (1) whether or not speed and comprehension are tested on the same materials, (2) the subject matter content of the materials, (3) the difficulty of the materials, and (4) the familiarity of the materials.

Reader Characteristic Variables

Variation in the reader's intelligence appears to affect the rate-comprehension relationship. Carlson (3) found some evidence which indicates a tendency for less intelligent readers to read better at slower rates and for more intelligent readers to read better at faster rates. He concluded that this tendency is accentuated when the purpose of reading is more exacting and when the material is more difficult.

It is possible that failure to control the factor of "purpose" is responsible for many of the conflicting results pertaining to this problem. Reported differences in rate-comprehension correlations among various subject matter fields are no doubt partly due to differential reading purposes in these fields. Many of the high correlations between rate and comprehension have been obtained under conditions when reading purposes were not exacting and limited demands were made upon comprehension skills. In studies by Blommers and Lindquist (2) and Shores and Husbands (13) the factor of purpose was controlled by asking questions before reading. These questions made reading purpose more exacting by calling for critical thinking involving interpretations, inferences and evaluations. These two studies report correlations between rate and comprehension to be either low or non-existent. In Carlson's (3) study, in which purpose was varied as an independent variable, the relationship between rate and comprehension also tended to vary. Thus, it can be seen that the reader characteristics of intelligence and reading purpose clearly affect the relationship between rate and comprehension.

Testing Procedure Variables

Testing procedures play an important role in determining the outcome of studies on the rate-comprehension relationship. Many of the high correlations result from the fact that the "comprehension" tests are, in part, a measure of "rate," so that the reader is working against time. The imposition of time limits which do not permit slow readers to finish answering questions obviously favors the faster reader on the comprehensive score. The inclusion of time to answer questions with the total reading time measurement favors the reader with high comprehension on the rate score. Gates concluded that reading tests, " . . . do not differentiate between rate and comprehension for the correlations of rate tests with the composite of comprehension are about the same as with the composite of rate, and the correlation of comprehension tests are about the same with rate as with comprehension." (6)

When no time limits are imposed upon reading, the correlation between rate and comprehension is considerably reduced. Preston and Botel (11) gave the *Iowa Silent Reading Test* under both timed and untimed conditions. Under timed conditions, the correlations between rate and comprehension were .48, but under untimed conditions the correlation was only .20. Flanagan (5) reported a correlation of only .17 between "rate of work" and his "level of comprehension" score which is an estimate of the comprehension score an individual could be expected to make given unlimited time. Stroud and Henderson (14) found no relationship between rate and comprehension when time for answering questions was divorced from the speed score and readers were instructed to read at their own natural rate. Blommers and Lindquist (2) obtained a correlation of only .30 between rate of reading and "power of reading comprehension." Shores and Husbands (13) found little or no relationship between rate and comprehension when no time limits were imposed and the subjects were set to solve problems through reading relatively difficult material. In a correlational study of factors in speed of reading tests, Seashore, Stockford, and Swartz (12) allowed subjects to spend as much time as they needed on a power test. They concluded that individual differences in the speed of reading moderately difficult material are not determined by factors underlying either a reading comprehension test or a vocabulary test.

The relationship between speed and comprehension is influenced by the manner in which comprehension is measured. Letson (9) found high correlations (.46 and .77) between rate and comprehension when comprehension was measured as the number of correct responses. He found a low negative correlation of —.10 when comprehension was measured as the percentage of correct answers in relation to the number attempted. Evidently these findings can be accounted for by the fact that fast readers could read more material during the time limit and therefore could answer more questions. It would seem, then, that the relationship between rate and comprehension is considerably influenced by the testing procedures involved in the measurement of both reading speed and comprehension.

In conclusion, it appears that the confounding of rate and comprehension on measurements is, at least in part, responsible for some of the earlier findings that "fast readers are good readers."

Other studies of the relationship between rate and "power of comprehension," find only a slight relationship. When the material is more difficult, when more critical thought processes are involved, and when the reader's purpose is more exacting, the relationship between reading rate and comprehension is minimal.

References

1. Anderson, I. H., and W. F. Dearborn, "Reading Ability as Related to College Achievement," *Journal of Psychology*, 11:387-396, April, 1941.
2. Blommers, P., and E. F. Lindquist, "Rate of Comprehension in Reading: Its Measurement and Its Relation to Comprehension," *Journal of Educational Psychology*, 35:449-473, November, 1944.
3. Carlson, T. R., "The Relationship Between Speed and Accuracy of Comprehension," *Journal of Educational Research*, 42:500-512, March, 1949.
4. Eurich, A. C., "The Relations of Speed of Reading to Comprehension," *School and Society*, 32:404-406, September, 1930.
5. Flanagan, J. C., "A Study of the Effect on Comprehension of Varying Speeds of Reading." In *Research in the Foundations of American Education*. Washington, D. C.: American Educational Research Association, May, 1939. Pp. 47-50.
6. Gates, A. I., "An Experimental and Statistical Study of Reading and Reading Tests," *Journal of Educational Psychology*, 12:303-314, 378-391, 445-464, September, October, November, 1921.
7. Judd, C. H., "Measuring the Work of the Public Schools," *Cleveland Educational Survey*, 1916, pp. 124-161.
8. King, I., "A Comparison of Slow and Rapid Readers," *School and Society*, 4:830-834, November, 1916.
9. Letson, Charles T., "Speed and Comprehension in Reading," *Journal of Educational Research*, 52:49-53, October, 1958.
10. Paterson, D. G., and M. A. Tinker, "Time Limit versus Work Limit Methods," *American Journal of Psychology*, 42:101-104, January, 1930.
11. Preston, R. C., and M. Botel, "Reading Comprehension Tested Under Timed and Untimed Conditions," *School and Society*, 74:71, August, 1951.
12. Seashore, R. H., L. B. O. Stackford, and B. K. Swartz, "A Correlational Analysis of Factors in Speed of Reading Tests," *School and Society*, 46:187, August, 1937.
13. Shores, J. H., and K. L. Husbands, "Are Fast Readers the Best Readers?" *Elementary English*, 27:52-57, January, 1950.
14. Stroud, J. B., and M. Henderson, "Rate of Reading and Learning By Reading," *Journal of Educational Psychology*, 34:193-205, April, 1943.
15. Thurstone, L. L., *A Factorial Study of Perception*. Chicago: University of Chicago Press, 1944.
16. Tinker, M. A., "Relation of Speed to Comprehension in Reading," *School and Society*, 36:158-160, July, 1932.

Speed, Comprehension and Power in Reading *

Jack A. Holmes

University of California

Introduction

Speeded reading is demanded by the tempo of the times, but the keen appreciation of crucial ideas, the understanding of those great concepts which have taken the human race thousands of years to evolve, need not, indeed cannot, be fully grasped as one's speed approaches its limit.

The secret of good reading lies in the ability to know when and how to change pace. The mundane material concerning the commerce of life may well be read quickly; but when one comes to the crux of the message, or when one fortuitously encounters one of those fountainhead concepts from which ideas flow, then one must deliberately drink the delightful draught until the full meaning has been drained. Even then such passages are wellsprings that may be read again and again, each time affording the reader a little deeper insight, a greater understanding, a new zest for life!

Indeed, the deepest satisfactions come not when one is able to read a book in 30 minutes flat (the goal stressed by some teachers today), but rather when one chances upon a beautifully written passage carrying so much meaning, sparkle, and conviction that it verily sings — as when great poetry clarifies the meaning of life and causes one to bring his value system into closer harmony with the realities of the universe.

My first point, then, is this: If one *already knows* how to read, his *rate of comprehension* of the printed page can be increased enormously by persistent practice on easy material over an extended period of time. This is all to the good. Nevertheless, as one pushes his speed above the four to eight *hundred* words per minute mark into the next higher order of magnitude, say two to eight *thousand* words per minute, the reader simply rides in on the crest of the wave. As his eyes race down the page it is true that he may learn to catch the gist of the story; but the beauty of the syntax, the style, the sting, the twinkle, the music in the well-turned phrase, the technical explanation, or logic of a philosophical discussion cannot be truly pondered, grasped, and appreciated. One may gain a knowledge of a subject by speeded reading, but he cannot gain a *working knowledge* of it. To achieve such a working knowledge, i.e., technical mastery of scientific material, or high appreciation for the music and sense of great literature, one must read not for comprehension alone, but for *power* — and it is just this *power of reading* that I wish to discuss with you in my next go-around. That is, what *is* it that makes for power in reading; and what exactly is meant by the word "power" when used in this context?

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*This paper draws heavily upon a research study done by the writer and Dr. Harry Singer, "The Substrata Factor Theory: Substrata Differences Underlying Reading Ability in Known Groups." This study was a Cooperative Research Project supported by the University of California, the United States Office of Education, and the Carnegie Foundation of New York.

The Theory

It was my intent, a moment ago, to imply that theory and fact can be brought together to explain just what it is that makes one student differ from another in his ability to read with what I term "power." To this end, then, I will first outline the basic essentials of the Substrata-Factor Theory and, second, report some of the findings of an experiment we have recently completed in our labs at the University of California.

Fig. 1 presents a diagrammatic model of a working-system for power of reading. The large ball at the apex represents power of reading, the lines-of-support umbellating out from it represent psychoeducational associations between power of reading and the substrata factors at Level I.

Holding to the same logic, the Theory hypothesizes that underlying each of the subabilities discovered at Level I, we may expect to find even more fundamental ones at Level II. Below such secondary abilities, we might further expect to find a set of tertiary elements.

The Substrata-Factor Theory of Reading is concerned with the way the mind *mobilizes* sets of *sub-abilities* (which we will refer to as elements) into an ordered arrangement or hierarchy. In varying degrees, according to their existing strengths, the elements of this hierarchy simultaneously stimulate and reinforce each other. They compare and contrast incoming information

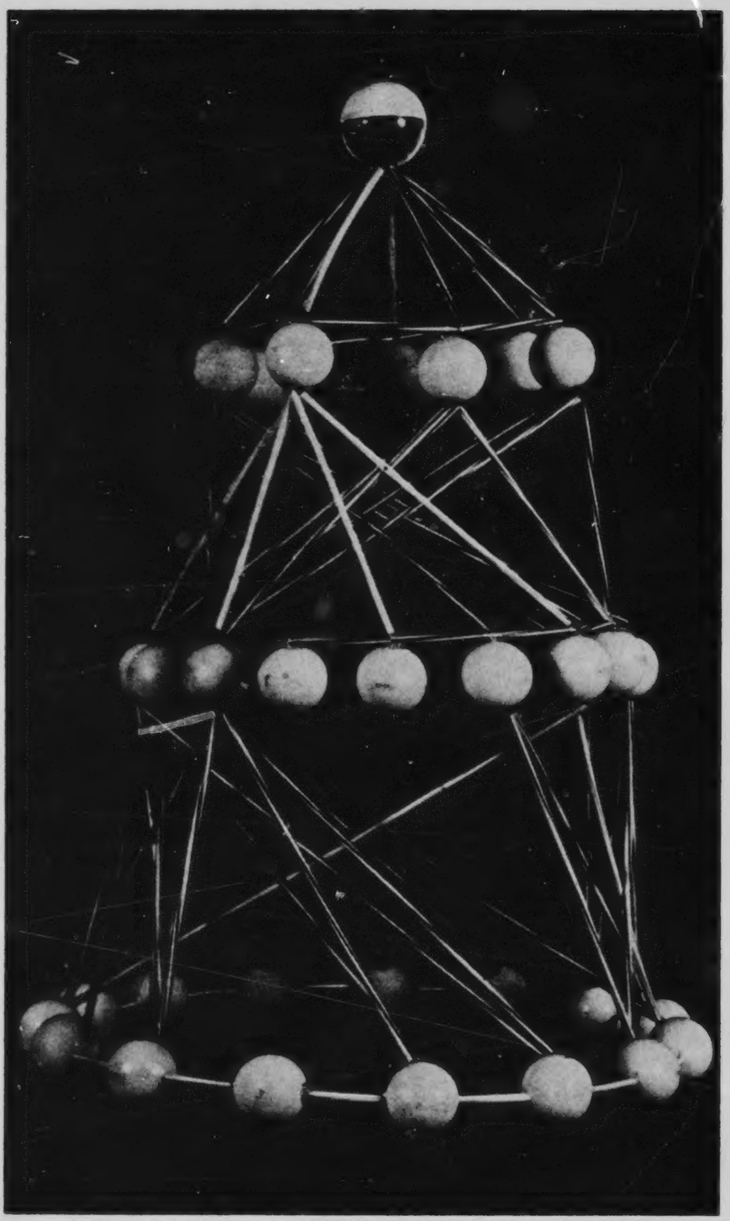

FIG. 1 PING-PONG MODEL OF WORKING SYSTEM

with existing knowledge leading to a new conception, a new working knowledge, gained from the reading material. This complex ability, with its various elements, we have sought to measure and have termed it "power of reading."

The Theory holds that the auditory, visual, and kinesthetic components of incoming information are ordered and stored in localized cell-assemblies in the brain. Individuals differ in the degree to which they tend to use one of these input channels over others. At the high school level approximately two-thirds of the students are predominantly visually minded; somewhat *less* than one-third will learn better through their auditory senses, and a small percentage (mostly boys) must rely heavily upon the proprioceptive or kinesthetic senses as their most efficient input channel. This part of the Theory gives us the key as to why the majority of a class learn quickly and easily by the Look and Say method, why some children appear to thrive under a system that stresses phonics, and why still others who fail to learn by either of these methods are, in fact, able to learn to ready by Fernald's tracing method.

In the brain, sets of these cell-assemblies form centers, each with its distinctive function. Oversimplified:
1. The function of one center is to store the memory traces from visual impulses which arise when viewing a concrete object.
2. The function of a second visual center is to store *symbolic representations* of the *ideas about* concrete objects, relationships, or other ideational abstractions. Here, then, is where words are perceived, registered, categorized, and filed for future reference and recall.
3. A third center stores auditory impulses which carry information conveyed by *spoken* language.
4. A fourth center stores kinesthetic impressions from tactile and muscle sensations. The location of these centers in the brain is a long-established anatomical fact.

Comprehension

According to the Substrata-Factor Theory, as a result of the on-going cerebral activity during the act of perception (as in reading), the details deposited in the separate centers are now reassociated as faithfully coded representations of the objects themselves. In other words, during reading coded audio-visual and kinesthetic impressions derived from the descriptions of concrete objects are reassembled in the mind—this is comprehension.

Power

However, simultaneously with the foregoing process, as a result of the heightened cerebral activity engendered by increased concentration, conceptual abstractions are wrought by the process of comparing and contrasting the incoming information with relevant information already stored from past experiences — this is power of reading.

It is important to understand that the input channel predominant in sensory perception need *not* coincide with the modality used in imagination and thinking. In fact, it would seem that the highest reasoning tends toward not the conjuring up of visual, auditory, or kinesthetic images, but of abstract conceptualizations mediated either as (a) subarticulated verbalizations, or (b) vague generalizations unattached to words or coded representations of concrete details.

Substrata factors, then, are psychoeducational subsets of information stored in neurological subsystems of cell-assemblies. Such substrata factors stand ready to be *mobilized* into a *working-system* in accordance with the purposes of the reader. When connected into such a working-system, each substrata factor exerts an influence on all other information centers. Hence, the more efficient and the greater the number of associations among the substrata factors, the higher the *interfacilitation* of the total working-system. The explanation of how speeded reading is accomplished rests, therefore, not in the persistent practice of reading easy material, but in persistent pressure forcing the individual to increase the number of the interfacilitating associations. This, in turn, results in a heightened activity of perception, integration, abstraction, and generalization.

This being the Theory, the task of the experiment was to find whether such a model could, in fact, be statistically constructed; and, if so, what abilities would be found making us such substrata levels.

The Experiment

In the experiment, 400 students were given some 56 separate tests, including such diverse elements as primary mental abilties, linguistic abilities, perceptual abilities, study methods skills and attitudes, and such interest factors as are recorded by the Kuder interest inventory. A host of psycho-sociological problem areas were also assessed with respect to their ability to explain individual differences in the criteria, Speed and Power of Reading. These variables were analyzed by the Substrata-Factor Analysis. Time does not allow us to go into the statistical details or methodology. Suffice it to say that when this was done, a very interesting set of abilities were indicated as substrata factors underlying Power of Reading.

Fig. 2 presents the results diagrammatically, and it will be seen that under Power of Reading we were able to account for 75 per cent of the variance as indicated distributed among the seven following variables: Vocabulary in Context, 16%; Mechanical Interest, 1%; Study Planning and Deliberation, 1%; Visual Verbal Meaning, 6%; Verbal Analogies, 16%; Auding Ability, 16%; Tone Intensity, 3%; and Vocabulary in Isolation, 16%, at Level I.

It is strikingly apparent that Power of Reading is greatly dependent upon a knowledge of words and the concepts that they symbolize. Notice that Vocabulary in Isolation, Vocabulary in Context, and Visual Verbal Meaning are all different phases of the vocabulary domain. Verbal Analogies itself is reasoning through the manipulation of verbal concepts. Auding ability has to do with listening comprehension of human speech. So it is definite that at the first level the most essential element of Power of Reading is a knowledge of the meaning of words and the ability to manipulate the concepts behind these auditorily and visually perceived verbal symbols on the printed page. (This point favors the Look-Say method.)

As shown by Fig. 2 at Level II, underlying the various forms of vocabulary are a host of other factors such as Range of Information, Computational, Literary, and Clerical Interest, Word Sense, Reasoning, Prefixes, Latin and Greek Roots, School Adjustment, Speed of Addition, Spatial Relations, Figure and Ground, Musical Taste, Musicality, and Tonal Movement.

As shown by Fig. 2, Pitch, Phonetic Association, Homonyms, Age, and Mechanical Aptitude all combine to account for 38% of Range of Information at Level III. Now I think this is an important result because, of all the elements, Range of Informa-

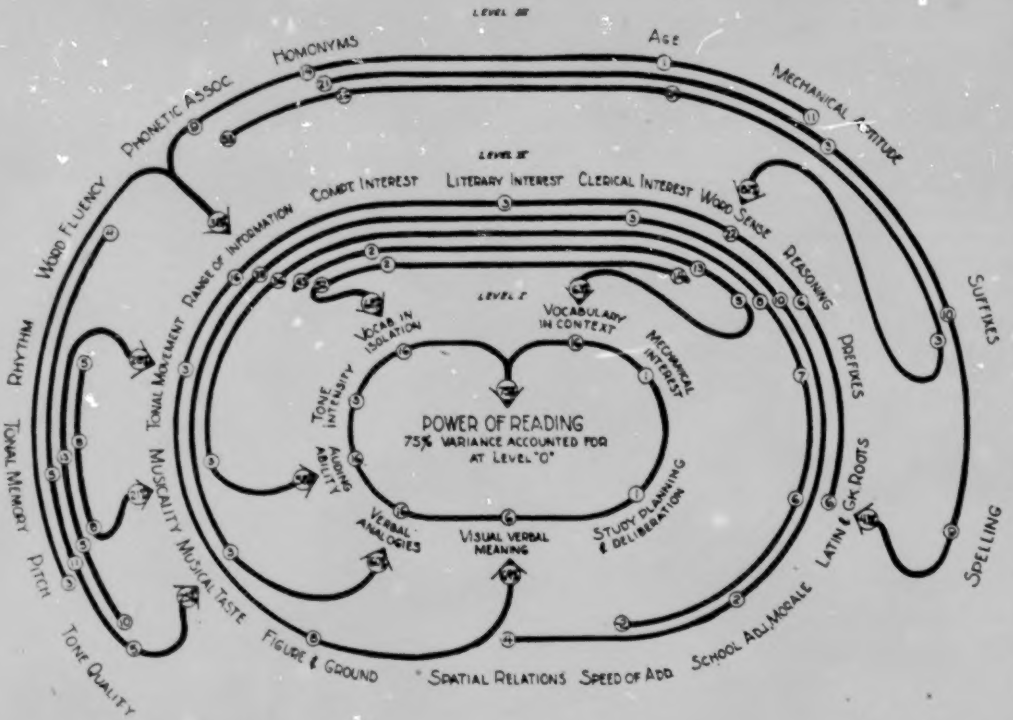
LEVEL III
LEVEL II
LEVEL I
POWER OF READING
75% VARIANCE ACCOUNTED FOR AT LEVEL "0"
AGE
HOMONYMS
PHONETIC ASSOC.
MECHANICAL APTITUDE
WORD FLUENCY
COMPT INTEREST
LITERARY INTEREST
CLERICAL INTEREST
WORD SENSE
RANGE OF INFORMATION
REASONING
SUFFIXES
RHYTHM
TONAL MOVEMENT
VOCAB IN ISOLATION
VOCABULARY IN CONTEXT
MECHANICAL INTEREST
PREFIXES
TONE INTENSITY
AUDING ABILITY
TONAL MEMORY
MUSICALITY
VERBAL ANALOGIES
VISUAL VERBAL MEANING
STUDY PLANNING & DELIBERATION
LATIN & GK ROOTS
SPELLING
PITCH
MUSICAL TASTE
TONE QUALITY
FIGURE & GROUND
SPATIAL RELATIONS
SPEED OF ADD.
SCHOOL ADJ. MORALE

FIG. 2. POWER OF READING CONCENTRIC FLOWCHART FOR TOTAL SAMPLE OF 400 HIGH SCHOOL STUDENTS. *(Concentric rings from target center represent hierarchial organization of sub-strata factors at Levels I, II, III in the working system [illegible] power of reading. The discs give per cent of variance accounted for each substrata factor's line of support. Holmes 1961)*

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tion is the most ubiquitous. Like Reasoning, it underlies the basic verbal elements that enter into Power of Reading at Level I. For instance, it accounts for over half, 52%, of Vocabulary in Isolation; 43% of Vocabulary in Context; 36% of Auding ability, 38% of Verbal Analogies, and 16% of Visual Verbal Meaning. And yet, we are able to account for only about 38% of Range of Information itself by the more fundamental factors in our matrix. This would lead us to believe that the information represented by this particular substrata factor is information of a specific sort and goes way beyond the mechanics of the language itself. And, if I might say so, this gives us definite proof that those who have criticized our basal readers of the last thirty years have some justification. That is to say, there has been very little real information given to the student in most of our primary readers up to the present time.

Implications

Most of the basal readers have been a Dick and Jane, a Bob and Barbara type of chit-chat, centered on exercises which will increase vocabulary. But that vocabulary has been of a very low order and tied to the everyday concepts the child has already learned around the house. What I am saying is that these concepts do not give the child a chance to stretch his mind. He knows nothing more in terms of information, of new knowledge, after having read through a set of primary and elementary textbooks in *reading* than he did before he started, except that he now knows how to read a certain high-frequency list of words with some fluency. This in itself is good, but the fact that he does not get those basic concepts, or ideas, or information which will help him expand his mind when he begins to read in order to learn is a valid criticism of this type of reader.

Perhaps here we can stress the difference between learning to read and reading to learn. I think that we are prolonging the initial period of learning to read beyond the time that is profitable. Learning to read must also, sooner or later, begin to take on the concepts of reading to learn, because later reading depends upon prior learning, and that prior learning is not only a matter of the right pronunciation or visual identification of words, but also (and more important) the mental manipulation of abstractions and an increased store of pertinent information.

If we were to return, as many people are now suggesting, to the McGuffey type of reader, we would not be much better off. There is so much in the McGuffey Readers that would be unacceptable to most moderns. For instance, a class system is definitely implied. There is the Horatio Alger type of story told over and over again, which is really not applicable today. While we admire the fortitude of the person in the story, teachers know better than to suggest that hard work on the job is a substitute for education. We know very well that times have changed and that many of the concepts expounded in the McGuffey Readers are no longer practical or tenable. Furthermore, while its code of ethics is unassailable, the manner of its presentation is effusively sentimental.

A hope for the future, in answer to this dilemma, is to introduce into our programs reading textbooks that have not only a graded list of words, but a graded list of *concepts.* And these concepts must become deeper, more difficult and more complex than we have previously thought possible for children to learn. I maintain, I think with some justification, that children are more capable than many educators would have us believe. For as they begin to understand more, as the reading material becomes more meaningful, their interest and power of reading will increase.

One bright spot in the developmental reading in the modern curriculum is the introduction of science and modern geography, history, and social studies into the elementary school classrooms. We must have, I think, more of these subjects in our *reading* textbooks; that is, we need the technical words that will carry over into the so-called solid disciplines, keyed to the major concepts that the child must know in order to read in these fields. And the reading teacher is in a strategic position to help the child expand and consolidate those substrata elements involved in power of reading, of which the most important is Range of Information.

References

1. Holmes, Jack A. "The Substrata-Factor Theory of Reading: Some Experimental Evidence." In J. Allen Figurel (Ed.), *New Frontiers in Reading*. International Reading Association Conference Proceedings, Volume 5, 1960. New York: Scholastic Magazine, 1960. Pp. 115-121.
2. Holmes, Jack, and Harry Singer, *The Substrata-Factor Theory: Substrata Factor Differences Underlying Reading Ability in Known-Groups at the High School Level.* United States Office of Education Monograph Series, 1962. (In press.) (Based upon final experimental reports covering Contracts No. 538, SAE-8176, and No. 538A, SAE-8660, U. S. Dept. of Health, Education, and Welfare. 1961.)

Reading as Linguistic Behavior

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It appears to me that once a pupil has learned to read, he can comprehend through reading anything he is capable of understanding. In all our discussion of transfer of training, I think we have generally overlooked the most remarkable example of it of all. Comprehension of the spoken and written language may be the most highly generalized skill that the mind of man is capable of — more so, at least more remarkable, than counting. It is true, of course, that once one has learned to count, he can count any kind of things perceptible to any of his senses, things never before encountered. But in counting one is always employing the same number names and uses them in exactly the same order.

In language, this is not true. One practically never encounters twice, except for quotations, the same words in the same order. In this convention you will probably not hear the same sentence twice, nor a single sentence that you have ever heard before in your entire lives. In all the libraries of this University, there probably cannot be found two sentences exactly alike, again except for quotations. This fact occasions no difficulty to the reader whatsoever.

Language, in any given system, is made up of symbols, spoken or written. These are the same symbols. They are used interchangeably in writing, speaking, reading, listening, and thinking. Language, in any given system, conforms to certain rules of syntax and inflection, but permitting an almost endless variety of arrangement. Only the constituent words are always the same, and it is only the *form* of the word that is the same. Its meaning within a given sentence varies according to context. Once a language has been mastered, or to the extent that it has been mastered, by a pupil, he is ready to employ it in any and all the ways language can be employed — in his own private thinking, in speaking, in writing, in listening, in reading. It is the same language in all instances, only the mechanism for using it varies.

In this connection, I wish to mention two of Hockett's design features of language, interchangeability, and total feedback. (He lists 13 in all.) He says that "In general a speaker of a language can reproduce any linguistic message he can understand . . ." (1.90) (At least he can reproduce it as well as he understands it. It makes no difference whether he hears the message or reads it.) "Feedback is important, since it makes possible the so-called internalization of communicative behavior that constitutes at least a major portion of thinking." (1:90)

As you know, correlation coefficients between reading comprehension scores and listening comprehension scores generally run as high as the respective reliabilities will allow. In the two cases we seem to be measuring the same understanding. We start out by teaching the pupil to read. When this has been accomplished, we are in a position to start utilizing reading for the further development of understanding. Reading comprehension is not something we teach as such. There is little comprehension that is specific to and limited to reading. We utilize reading to develop comprehension and all the facets of the human mind. I suppose it is all right for us to try to teach reading comprehension if at the same time we understand that we are teaching comprehension, not just reading comprehension.

In reading, it is required that the reader know what he is reading about, just as in talking, one needs to know what he is talking about. This same fund of knowledge is employed in all forms of linguistic behavior. Happily, it does not matter how the knowledge was acquired — whether one heard it, read it, or observed it first hand. It generalizes to all forms of linguistic behavior. Fortunately, the burden of supplying the knowledge required in reading comprehension, does not rest upon the teacher of reading. His chief function is to teach pupils to read his language. The school, the educational system, and society supply the knowledge.

References

1. Hockett, Charles F., "The Origin of Speech", *Scientific American*, 203:88-96, September, 1960.

What is Comprehension?

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In my opinion, comprehension is an almost perfect example of a gestalt, a total that is greater than the sum of its parts. It is undoubtedly true that the factors of word meanings, interrelationships of details, and reasoning are significant components of comprehension. These factors are identified in a majority of the factor analyses of reading tests. Yet certainly comprehension is more than these three simple elements, for this information leaves unanswered the questions of 1) what thinking processes operate in comprehension and 2) how these processes may be measured or trained.

In their exploration of the substrata-factor theory, Dr. Jack A. Holmes and Harry Singer (2) have identified five primary factors which account for some three-quarters of whatever it is that results in power in reading at the fourth grade level. These five primary factors are in turn accounted for or depend in large measure upon about ten secondary and tertiary factors. At high school and college ages, the number of factors which contribute to comprehension in reading increases markedly. In effect, what Holmes and Singer are saying is that most of the recognized reading skills that we teach children, plus a few others not hitherto identified, enter into success in comprehension. Is this really a new discovery, or is it simply a mathematical confirmation of most of the elements of our present reading program? Practically every reading teacher knows that all the different skills she teaches influence the pupil's ultimate comprehension and that this is the basic justification for teaching these skills. Almost any broadly experienced reading diagnostician would produce a list of the components of comprehension that would closely parallel that of Holmes and Singer, if asked to list all possible causes of reading disability. For example, in a series of two articles on factors related to spelling disability written twenty years ago, I identified twenty-two primary and thirty-five secondary elements contributing to spelling disability. (4, 5)

Studies such as these do not, in my opinion, really define comprehension. They are extremely valuable, as in the Holmes-Singer study, in estimating the relative contribution or significance of each skill to the total of comprehension. Moreover, they give clues to the differential patterns of abilities according to sex, age, intelligence, and speed of reading. The data provide important leads to diagnosis and, perhaps, to remedial training if we accept the assumption that all possible important factors have been identified.

In contrast, I would like to attempt to describe what happens in the act of comprehension in the terms suggested by Donald E. P. Smith (3) and J. P. Guilford (1). The reader first recognizes words by their form, shape, structural parts, or by the implications of the context. (Cognition) Each word calls forth one or several meaning associations which the reader tries out for appropriateness in this contextual setting. (Memory) He accepts what seems to be the most relevant meaning or associative thought and proceeds to the next word, again choosing an association which seems logically related to the preceding word. Various groups of words form cohesive associations as he reads through the elements of the sentence. These groups of ideas or details coalesce into the stated or implied meaning of the sentence. The meanings of successive sentences may be combined inductively into the main idea of the paragraph. (Convergent Production, Inductive Reasoning) In deriving the main ideas of the paragraph, the reader may recognize cause-effect, question-answer, hypothesis-proof or other relationships which contribute to the generalization. Or these sentence meanings may form the basis of original deductions, such as implications or unstated conclusions, or ideas associated with but tangential to the main idea of the paragraph. (Divergent Production, Deductive Reasoning)

The reader may go far beyond simple comprehension of the literal, implied, or tangential meanings to evaluation of the ideas offered. He may reject their authenticity, or deny their implications or the bias or prejudice present. He may be moved to consult other sources for verification, to check the author's background, or to compare the author's value judgments. Finally, the reader may utilize the author's ideas or viewpoint in a creative treatment of the same topic basing his own ideas upon those he has read, or refuting them by proper logic or proof. (Evaluation, Critical Thinking)

References

1. Guilford, J. P., "Frontiers in Thinking That Teachers Should Know About," *The Reading Teacher*, 13:176-182, February, 1960.
2. Holmes, Jack A. and Harry Singer, *The Substrata-Factor Theory: Substrata Factor Differences Underlying Reading*. Washington, D. C.: U. S. Dept. of Health, Education, and Welfare, Office of Education, 1961.
3. Smith, Donald E. P., "Reading Comprehension: A Proposed Model." In Oscar S. Causey and Emery Bliesmer (Eds.),*Ninth Yearbook of the National Reading Conference for Colleges and Adults*. Fort Worth, Texas: Texas Christian University Press, 1960. Pp. 21-27.
4. Spache, George D., "Spelling Disability Correlates I — Factors Probably Causal in Spelling Disability," *Journal of Educational Research*, 34:561-86, April, 1941.
5. Spache, George D., "Spelling Disability Correlates II — Factors That May Be Related to Spelling Disability," *Journal of Educational Research*, 35:119-37, October, 1941.

Some Thoughts on Reading Comprehension

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In previous reports the writer has suggested that the term "reading comprehension" is a vague and poorly defined concept. (1; 2) In a later discussion it was suggested that an analytical approach to the study of the reading act might be fruitful. (3) This paper is designed to relate certain theories and findings concerning broad aspects of verbal behavior to the concept of reading comprehension.

Perhaps a suitable starting point would be to develop a working definition of reading. The following definition seems to be sufficient for the purposes of discussion. Reading is a process of communication by which a message is transmitted graphically between individuals. This rather simple definition implies that certain percepts are conveyed from one individual to another by use of a written, as contrasted to oral, form. With this simplified definition we can reconcile a number of the common uses of the word in educational circles. Note, for example, that we talk about "reading pictures," "reading graphs and tables," "reading maps and globes," and "reading stories." Our definition also implies that the sophisticated reader can even successfully read an abstract painting. One important condition exists and must be met, however, before communication can take place. It is axiomatic that both the transmitter and the receiver of any message agree on the meanings of any symbols employed. Perhaps the difficulties many of us have in reading abstract paintings is due to our lack of knowledge about the symbols employed by the painter.

The important role of the transmitter (i.e., the writer) is recognized by reading specialists who have utilized such concepts or methods as readability formulas, the assessment of vocabulary difficulty, examination of the lexical nature of the writing, and the abstractness of the content of the passage. The realization that such factors may hamper message transmittal is implicit in our traditional basal reading programs with their stress on graded vocabulary and carefully introduced word recognition skills. Unfortunately the reading specialist who functions at the college or adult level tends to pay less attention to the role of the writer and the symbols he employs to encode his message. Although there remains a tendency to give lip service to awareness of the importance of the level of vocabulary and the lexical structure of the writing, reading comprehension is largely regarded as the degree to which a reader understands what has been written. Unlike ordinary oral communication between two individuals, in reading there is no feedback to the transmitter. Most of us who lecture or talk as part of our livelihood learn to adjust our deliveries and language as we become aware that our messages are not getting through. Unfortunately the writer usually has no way of being aware that his reader does not understand.

The lack of flexibility inherent in graphic methods of communication then places an added emphasis on the importance of the symbols used in transmission and reception. Symbolic logicians long have pointed out that words are symbols which have arbitrary significance. Men must agree on the meanings of words if they are to be able to communicate by using them. Shakespeare's comment that "a rose by any other name would smell as sweet" shows insight into this condition. We learn the necessary symbols and attach meaning to symbols as a result of learning, for we lack this knowledge at the time of birth. An interesting facet of verbal learning is that we learn to respond to verbal stimuli only when others reinforce our behavior. (4:5; 5:52) It is inevitable that individual differences in learning will result in certain differences of meaning being attached to any symbol. In fact it is highly debatable whether any two individuals attach the identical meaning to any word. In addition to the kind of associations developed in connection with a given symbol, the number of associations is an important condition. Some verbal stimuli are likely to elicit a number of responses while others may elicit a comparatively few responses. Another word may elicit strong emotional responses (as shown by word association tests) while others may elicit neutral or weak responses. Certainly these aspects play important roles in the discrimination of a graphic symbol and in its "comprehension." It is likely that for the mature reader every symbol elicits a number of responses depending upon his needs at the moment and the strength and number of his associations. It also seems likely that each mature reader develops a more or less stylized or habitual mode of response to graphic symbols. Skinner's statement is note-worthy in this connection. He states that "Reading is not an ability or a capacity but a tendency. When we say that an individual is 'able to read' we mean that he *will* behave in certain ways under suitable circumstances involving a verbal nonauditory stimulus." (5:66)

It is popular to talk about reading comprehension as the degree to which a reader "gets the message of the writer" or "understands what he reads." In this paper it has been suggested that rarely is the writer available to the reader so that interaction between writer and reader is necessarily limited. Because of this limitation a greater agreement on the significance of any symbols employed in encoding and decoding the transmitted message is necessary. Despite similarities in culture, it is unlikely that all persons will attach identical associations to any given word, phrase, sentence, or paragraph. In actual practice today reading comprehension means the degree to which reader's interpretations of a graphic symbol are congruent with those of some authority figure, such as a teacher or test constructor, or approximate those of the majority of his fellow men. It is perhaps a measure of conformity rather than comprehension.

We have had an unfortunate tendency to treat reading comprehension as an absolute quality. This tendency may be due to the popular type of multiple-choice test usually employed to measure comprehension in practice exercises of tests. In such cases the student who chooses an incorrect foil is marked wrong and the assumption is he has not understood the passage. In an actual reading selection it is possible to have comprehension of the message in a number of degrees. Take the following hypothetical reactions of a group of children who read the nursery rhyme.

> "Jack and Jill went up the hill
> To fetch a pail of water.
> Jack fell down and broke his crown
> And Jill came tumbling after."

1. Two lads went up a hill to get some water but both fell down.
2. A boy named Jack and a girl named Jill went up a hill to get a bucket of water from the well. The boy fell down and hurt his head. Then the girl fell down too.
3. A king and queen went up a hill to get some water. The king fell and broke his crown. The queen fell too.

4. A man and a woman climbed a mountain. The man whose name was Jack fell and broke a crown the dentist had put in a tooth. The lady whose name was Jill fell down after him as she tried to help him.
5. Two people went up a hill looking for water. The man slipped and fell down to the bottom. The woman fell down on top of him.
6. A boy and a girl named Jack and Jill ascended a hill seeking water. Jack slipped and fractured his skull. Jill also slipped and rolled down the hill.

In each interpretation it will be noted that there are certain elements of correct average decoding. It also is apparent that each child's associations led to interpretations which were meaningful to him. Note for example the translation in Case 2 of bucket for pail, certainly a more meaningful concept to a southern child. Note in Cases 3 and 4 the attempt to find a meaningful referent for the word "crown." Can we assume that child Number 1 understood less than child 6? Certainly not on the evidence shown here. If we were teachers in the classroom, we would seek to elicit more information from the children by questions, discussions, and suggestions. By such means we seek to develop similar patterns of response and judge success or failure by the degree of similarity or congruency shown.

References

1. Kingston, Albert J., "Cautions Regarding the Standardized Reading Test". In O. S. Causey and A. J. Kingston (Eds.), *Fourth Yearbook of the Southwest Reading Conference.* Fort Worth, Texas: Texas Christian University Press, 1955. Pp. 11-16.
2. Kingston, Albert J., "The Measurement of Reading Comprehension". In O. S. Causey, and Emery P. Bliesmer (Eds.), *Ninth Yearbook of the National Reading Conference.* Fort Worth, Texas: Texas Christian University Press, 1960. Pp. 88-93.
3. Kingston, Albert J., "A Conceptual Model of Reading Comprehension". In Emery P. Bliesmer, and Albert J. Kingston (Eds.), *Tenth Yearbook of the National Reading Conference.* Milwaukee, Wisconsin: The Conference, 1961. Pp. 100-107.
4. Miller, George A., *Language and Communication.* New York: McGraw-Hill Book Company, 1957.
5. Skinner, B. F., *Verbal Behavior.* New York: Appleton-Century-Crofts, Inc., 1957.

Mental Content, A Contributing and Concomitant Factor in Reading

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To some psychologists, the term mental content is an unnecessary expression having little or no significance. To the student of reading, however, mental content is a term having value both in explaining the reading process and in developing a readiness for reading at all levels. It is the function of this paper to discuss some psychological aspects of mental content, to show its relationship to reading, and to point out how it can become both a contributing and concomitant factor in the act of reading.

Some Aspects of Mental Content

English and English define mental content as "that of which one is aware at any moment; that which can be introspectively reported or all the mental data collectively present at one time. The data are sensations, thoughts, probably feelings and perhaps volitions." (2) Mental content, they add, was the central target of Behaviorism which denied its existence, or at least its scientific validity. Furthermore, they explain that "much of the older content psychology is now being revived but in a matrix of response-oriented psychology."

The theories of Witasek (5), an exponent of the old Subject-Object psychology, is relevant to a discussion of this matter. For Witasek, meaning is the resultant of act (Akt) and content (Inhalt). For example, in the sentence, *The whipple-tree was seriously damaged,* the actual object, whipple-tree, is not studied in psychology but is the subject matter of physics and the physical sciences while content is psychological in nature and entirely the result of experience. The qualities of an object are both physical and mental and in securing meaning there must be the act of seeing and the use of mental content with which to make an identification. In the process of reading then, one sees the symbol *whipple-tree;* and if one possesses appropriate mental content, he is able to identify, interpret and evaluate the concept. In other words, one sees with what he has seen.

Kohler, one of the leaders of Gestalt psychology, points out that one cannot build a mental mosaic from atoms of conscious content as a mason builds a house brick by brick. (4) Instead, there are properties constitutive of the whole which are not present in the individual parts. There is more than a compilation. There is an integration for when parts go together, their individual properties are dissipated and new ones appear. For example, water has properties not found in oxygen and hydrogen, its constituent parts. Consequently, in this discussion the writer will use the term, mental content, to represent an integration of conscious experiences rather than an accumulation of its various elements.

Relation of Mental Content to Reading

Reading may be defined as a purposeful process of identifying, interpreting and evaluating concepts. Both perceptual and conceptual factors are involved. In this presentation, however, reading as a thinking process will be emphasized. In setting forth the importance of mental content, it may be well to let S represent any symbol and M mental content. Then the three aspects of reading may be shown as follows:

(1) Identification $$= \frac{S}{M}$$

(2) Interpretation $$= \frac{\frac{S}{M}}{M} \text{ or } \frac{S}{M^2}$$

(3) Evaluation $$= \frac{\frac{S}{M^2}}{M} \text{ or } \frac{S}{M^3}$$

In equation (1) the symbol is identified in terms of one's mental content. In equation (2) the identified symbol is interpreted in harmony with mental content. Equation (3) shows the evaluation of the interpreted symbol in terms of M.

With these statements in mind, reading may be redefined as a function of $\frac{S}{M} \bullet \frac{S}{M^2} \bullet \frac{M^3}{S}$ having characteristics and properties differing from its constituent parts. This functional concept of reading seems superior to the old two-dimensional description of reading as "rate and comprehension." In fact, the term comprehension is obsolete and has probably far outlived its usefulness.

Reading then is shown as an integration of skills rather than an accumulation and, furthermore, it is apparent that M increases in importance as the aspects of reading become more complex. Mental content or M is introspectively utilized in the identification, interpretation and evaluation of concepts for it is the "ground" upon which the "figure" is transposed. For example, the reader who sees the word "sine" may *identify* it as the "function of an angle" or as "without" depending upon his M. If this M is made up of experiences in the field of trigonometry, his *interpretation* of sine based upon his mental content as he views a right triangle will be that sine of angle BAC is $\frac{BC}{AC}$. Obviously, this requires a greater degree of M than merely identification. Furthermore, the *evaluation* of the term "sine" which can be expressed by its use in the solution of a trigonometric problem would require comparatively the greatest degree of M. Surely, one reads to secure meaning and one uses the integration of "meanings" to read effectively. The process is goal oriented and makes use of feedback which can add to M.

Developing and Making Use of Mental Content

Meaning resulting from reading in any content field requires mental content and this is built up by experience and reading. Smith and Dechant (6) have pointed out that both the reader's reaction to words and the development of facility in conceptualization is a function of previous experience. Surely, it is the responsibility of the teacher to aid his students in developing and integrating concepts in the field of instruction before the learner can be expected to listen and read intelligently. This can be accomplished by class demonstrations and by the use of audio-visual materials. A picture, for example, rich in detail and relevant to the subject being considered by the class can be projected upon the chalkboard. The instructor and members of the class can identify and discuss the picture both as a whole and as different parts. These can be labeled and the relationship of the parts to the whole can be explained. This activity not only stimulates interest but provides a common background of experiences and mental content which is essential for the act of reading. Occasionally during the presentation, the switch can be turned off, thereby eliminating the picture. At this time, students can be asked to identify and explain the function of the different terms remaining on the chalkboard. When difficulty is encountered, the picture can be restored and initial learning can be reinforced. In reacting to the words on the chalkboard, order and placement are probably significant factors. Associations are made between the word symbols and the pictured objects and attention is increased because there is a common center of interest for the individuals making up the group. Students can be encouraged to dictate their interpretation of the picture and these statements can be modified by the class and instructor and later written on the chalkboard. In this manner mental content can be developed and utilized by the class in making generalizations and in thinking critically.

Well planned and purposeful visitation of laboratories, manufacturing plants, and social agencies provide background and experiences which can contribute to interest on the part of the observer, but even more important can provide mental content essential to an identification, interpretation, and evaluation of concepts presented in class lectures and in the textbook. In class discussion students can be encouraged to report what they have observed and to set forth inferences and generalizations. These can be questioned and challenged by members of the group. In this activity mental content is developed and utilized. Stimulating discussion by members of the class can add both quantitatively and qualitatively to the mental content of each student.

Mental content is of little value unless it can be utilized in the acts of listening, reading, speaking, writing, all expressions of thought. Teachers in the classroom are well aware that many intelligent students are unable to apply what they know in new situations. They can answer questions invoked by such words as "who," "when," "what," and "where" but are at a loss to respond to those questions beginning with "how" and "why." In fact, some students have not developed the habit of asking questions and looking for answers as they listen and read. Is it not possible that mental content and ability to use it can be developed simultaneously? The writer (1) has shown previously how mental content, developed by questions and answers in a class of elementary science, was used in a problem solving situation where it was both a contributing and concomitant factor in reading. Surely, instructors in the various subject matter fields can make a greater contribution to the student's competence in vocabulary development and in reading as a thinking process than individuals unfamiliar with the field of specialization. These teachers in the content fields should, however, be acquainted with the basic principles of effective listening and reading. The identification and memorization of facts are important, however, their interpretation and evaluation are much more essential. Studies (5) show that in several subject matter areas facts can be taught effectively by machines and highly structured procedures, however, the instructor is primarily responsible for showing his students how to interpret and evaluate these facts and how to think creatively. Instruction in reading designed to develop ability to think in different fields of concentration cannot be taught in a vacuum by a skill-drill procedure making use of workbooks and specially constructed materials. Research by Halfter and Douglass (3) has made this point quite clear. If teachers of adult reading are to be effective in teaching their students to think creatively, they too must possess mental content in the field in which they are working and be able to apply it constructively and critically in their classes. Creativity is the result of a desire to gain insight into truth or beauty. It results from a consuming desire to solve a problem or to express an idea in words or other media. Creativity is the result of a need to build, construct, write, compose, and bring into existence that which is new. He who creates must possess mental content and a rich background of knowledge and experience. He must have materials with which to work and the *urge* to use them. It is doubtful that any reading "specialist" no matter how well trained can teach students to think creatively in several subject matter fields. The chief difficulty is the "specialist's" lack of mental content.

If these assumptions are true, how can the situation be improved? Is it not apparent that the teacher of adult reading must be more concerned with the conceptual aspects of reading? Should not reading as a thinking process be emphasized? Should we not be as much concerned with the development of mental content as we are with increasing rate? The teacher of adult reading can show his students how to identify, interpret, and evaluate ideas and how to integrate basic reading skills as the student does his regular academic work. The teacher in the content field can be acquainted with these principles of developmental reading and can apply them in his field of specialization as he demonstrates the various techniques of research and creative thinking. Both teachers are concerned with the development and utilization of mental content in the reading process. Each must understand the function of the other and cooperation can be the key to the situation.

Summary

In times when speed reading is being emphasized and when machines are being used effectively to teach facts, a discussion of mental content and its relation to reading is timely and relevant. In this presentation, mental content has been defined and shown to be a contributing and a concomitant factor in the process of reading and studying. Furthermore, the role of the teacher in developing mental content on the part of his students and in showing them how to use it effectively has been set forth. Mental content, which is essential to creativity, should be given more consideration by the classroom teacher.

References

1. Carter, Homer L. J., "Reading, A Contributing and Concomitant Factor in the Study of Science," *School Science and Mathematics*, 54:567-570, October, 1954.
2. English, Horace B., and Ava Champney English, *A Comprehensive Dictionary of Psychological and Psychoanalytical Terms.* New York: Longmans, Green and Company, 1958.
3. Halfter, Irma T., and Frances M. Douglass, "Inadequate College Readers," *Journal of Developmental Reading*, 1:42-53, Summer, 1958.
4. Heidbreder, Edna, *Seven Psychologies.* New York: Appleton-Century Company, 1933.
5. Lumsdaine, A. A., and Robert Glaser (Eds.), *Teaching Machines and Programmed Learning.* Washington, D. C.: National Education Association, 1960.
6. Smith, Henry P., and Emerald Dechant, "Experimental Bases of the Psychology of Reading." In Oscar S. Causey, (Ed.), *Seventh Yearbook of the National Reading Conference for Colleges and Adults.* Fort Worth, Texas: Texas Christian University Press, 1958. Pp. 39-47.
7. Williams, Robert D., and Roger M. Bellows, *Background of Contemporary Psychology.* Columbus, Ohio: Harold L. Hedrick, 1935.

Measurement of Improvement in Reading Skill Courses

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Rate of Reading

To the layman the measurement of rate of reading seems at first thought to be a simple undertaking. Just ask a person to read for five minutes, count the number of words read, and divide the number by five to get his average rate in words per minute. Unfortunately, thoughtful consideration of the problem quickly reveals that the measurement of rate of reading is a complicated and troublesome matter.

It is apparent that any reader's rate is greatly affected by his purpose in reading. How greatly is illustrated by some data obtained by Laycock (8). The rate of reading in words per minute of 391 applicants for admission to college is shown in Table I. The average scholastic aptitude score of these examinees was slightly above that of the median applicant for admission to college. When asked to read a passage at their normal rate, they averaged 220.4 words per minute. Asked to read a similar passage as fast as possible without missing important points on which test questions would be based, they averaged 308.1 words per minute. In other words, a simple request for them to increase their speed of reading without sacrificing comprehension resulted in an immediate 40 per cent average gain in rate.

After eliminating from consideration students whose comprehension scores were below 75 per cent, the gain made by the 37 fastest readers is even more surprising. Their normal average rate was 231.1 words per minute, which increased to 420 words per minute for an average gain of 82 per cent. Lest it be thought that gain would largely disappear on another testing because of regression toward the average gain for all 391 students, the results of a second testing should be noted. These 37 applicants read an average of 355.8 words per minute on the first selection in the second testing and an average of 533.1 words per minute on the second selection. The gain made by the 35 slowest readers who obtained comprehension scores of 75 per cent, or more, is also shown in Table I and indicates that changes in the purpose of slow readers cause marked increases in rate of reading even though the average per cent of increase is smaller than that of the initially rapid readers.

Three important implications follow from data of this type:

a. The measurement of rate of reading must be made under conditions that unambiguously define the purpose for which the reading is being carried on and that provide assurance that this purpose is being fulfilled by the reader.

b. Quite different instruments are needed for measuring the rate at which material is covered for the several important but very different purposes for which reading is done.

c. Since a mere request to a typical reader to step up his rate without sacrificing comprehension may result in a marked increase in his speed of reading many kinds of material without serious loss of comprehension, the results of training programs for increasing speed of reading should always be judged on the basis of procedures that exclude any increase in speed that a reader can make before the training is begun simply by stepping up his speed of reading without appreciable loss of comprehension.

The purposes of readers vary so widely that some of them hardly result in what is commonly defined as reading. For example, a student may wish to determine what topics are taken up in a book or an essay and how they are organized. He therefore skims through the material rapidly without making any effort to understand the content. This accomplishes his purpose, but his activity can scarcely be described as reading, in any ordinary sense of the term. He has used techniques that are well suited to his purpose, but he has not *read* the material.

A second purpose characteristic of many readers is that of following the main thread of a story. This purpose is uppermost in the minds of many readers of novels. A third purpose that commonly motivates reading is that of grasping an author's ideas, of understanding them, and of weaving them together in order to draw conclusions or to apply them in practical situations. A fourth purpose in reading is to learn certain facts or statements so that they can be reproduced from memory. Students must read many assignments with this purpose in mind.

Tests are needed to measure the rate at which reading can be carried on to fulfill each of these four purposes. Thus, at least four separate rate-of-reading tests should be made available, as follows:

a. A test of rate of covering words during skimming;

b. A test of rate of covering words while following the main thread of thought;

c. A test of rate of covering words while understanding the content;

d. A test of rate of covering words while learning the principal ideas in the content.

The level of complexity of material greatly affects the speed at which it can be read by an individual seeking to maintain a high level of comprehension. This fact can be illustrated by data published by Flanagan in 1939 (6). He administered 20 items in each of 3 equivalent reading scales in Form O of the *Cooperative Literary Comprehension Test* to 317 twelfth-grade pupils in such a way that they worked at different predetermined rates on the 3 scales. The resulting data are shown in Table II. The average score of the group of 317 pupils was 10.5 in 18 minutes of working time, 9.7 in 12 minutes of working time, and 7.0 in 6 minutes of working time. Thus, with a clear purpose (that of responding correctly to test items illustrated in advance by practice exercises), these twelfth-grade pupils sustained an average loss of comprehension in reading materials of equivalent difficulty and type when their working time was cut by one-third and by two-thirds.

An analysis of the data was made to determine whether different percentages of loss of comprehension occurred between the 12-minute and 6-minute working periods for the groups of pupils comprising the *highest* third of the 317, the *middle* third, and the *lowest* third with respect to comprehension scores in the 18-minute working time. As shown in Table II, the percentages of loss of comprehension between 12-minute and 6-minute working times were nearly the same for all three thirds of the original group. This result suggests that, with the purpose of the reader and the complexity of the content held constant, there is a fairly direct *inverse* relationship throughout the range of ability to comprehend between rate of reading and extent of comprehension. It may be noted that the pupils could refer back to the reading

TABLE I

RATE OF READING OF 391 APPLICANTS FOR COLLEGE ADMISSION*

Group	*N*	*Rate in Words/Min.*		*Gain in Rate*	*Training*
		Normal Rate	*After Request to Read Rapidly*		
All Applicants	391	220.4	308.1	88.7	None
Among Applicants With Comprehension Scores of 75%, or more:					
Highest	37	231.1	420.0	188.9	None
Lowest	35	219.3	255.0	35.7	None
Second Testing Among Applicants With Comprehension Scores of 75%, or more:					
Highest	37	355.8	533.1	177.3	
Lowest	35	321.6	428.0	106.4	

*After (7).

material as they responded to the comprehension questions, so memory played no appreciable part in determining the results of this experiment.

These results are so fundamental to understanding the process of reading that they warrant discussion. The inverse relationship between rate of reading and extent of comprehension under the conditions set by Flanagan's experiment makes such good common sense that one wonders why anyone ever doubts it. The reason is probably that other types of relationships between rate of reading and extent of comprehension have been obtained and confused with it. For example, Flanagan also found that in the group of 317 twelfth-grade pupils the product-moment coefficient of correlation between rate of reading (indicated by the number of test items read during the time limit) and extent of comprehension (indicated by the score on a test when every pupil has a chance to try every item) was .17. The fact that this relationship is *positive* (though low) does not contradict the finding that there is a *negative* relationship between rate of reading and extent of comprehension if other factors are held constant. The coefficient of .17 represents a relationship in a group of pupils who differ among themselves with respect to verbal aptitude (as well as with respect to other variables). Verbal aptitude is postively correlated in the group with both rate of reading and extent of comprehension. It serves as a common linkage, therefore, and largely accounts for the correlation of .17 between them. The point of practical importance is that pupils at any given initial level of comprehension tend to sustain a loss in comprehension as they are given less time to read the material and answer questions about it.

Two other studies of the relationship between rate of reading and extent of comprehension that should be mentioned are those of Blommers and Lindquist (1) and Carlson (2). In a sample of 672 pupils in grades 11 and 12, the former found a correlation of .30 between rate of reading and extent of comprehension. Working with elementary school pupils, Carlson found in a group of 330 fifth-grade pupils, that the correlation between rate of reading (expressed as the average number of words per minute for reading passages and test questions based on them) and extent of comprehension (expressed as the percent of questions answered that were correctly answered) varied somewhat with the purpose of the reader, the level of difficulty of the content, and

TABLE II

COMPREHENSION AT VARYING RATES OF SPEED IN READING COOPERATIVE LITERARY COMPREHENSION TEST, FORM O*

Group	*Mean Scores on 20 Items*		
	Time: 18 Mins.	*Time: 12 Mins.*	*Time: 6 Mins.*
317 Pupils in Grade 12	10.5	9.7	7.0
Highest third at 18 mins.		11.74	8.38
Middle third at 18 mins.		9.65	7.02
Lowest third at 18 mins.		7.59	5.26

*After (6).

the type of material read. Most of the coefficients that he obtained were insignificantly different from zero and about as many were positive as negative. The data have been summarized in Table III.

TABLE III

CORRELATIONS BETWEEN RATE AND EXTENT OF COMPREHENSION IN READING *

READING SKILLS	N (GRADE 5)	^{r}RC
Central Thought	330	.09
Making Inferences	330	.29
Following Directions	330	.09
Noting Details	330	.00
Reading and then answering questions		
Grade 3 level	330	—.03
Grade 5 level	330	—.04
Reading and answering questions interspersed		
Grade 3 level	330	.04
Grade 5 level	330	—.10
Grade 7 level	330	—.29
Reading short passages with questions at the end of each		
Grade 3 level	330	—.02
Grade 5 level	330	—.06
Grade 7 level	330	—.02

*After (2). Rate expressed as words per minute required to read the material and answer questions about it. Comprehension score expressed as percent of questions marked correctly.

The techniques commonly used for measuring changes in rate of reading brought about by reading skill courses and by various mechanical devices have been inadequate for the purpose. First, tests needed to measure the rate at which reading takes place to fulfill each of the four major purposes listed previously in this paper have not been available. Second, tests used to check comprehension have often been administered with time limits so have often included items that could be answered by many examinees before they read the material. Third, tests used to check comprehension have often been administered with time limits so short that every examinee did not have time to try each item and scored without a correction for chance success. In these circumstances, when an examinee is tested at the beginning and at the end of a reading skill course he may read so rapidly on the second testing that his comprehension is markedly reduced and yet obtain a higher comprehension score than at the beginning of the course simply by marking answers (at random, if necessary) to a greater number of items. Thus, his test scores give the false impression that he has greatly increased his rate of reading while maintaining or even improving upon his original extent of comprehension. Fourth, estimates of individual and group gains during reading skill courses have often been based on a comparison of scores on comparable forms of a test properly administered according to directions before and after the course without considering the fact that the training received during the course may have so altered the purpose of the examinee or examinees that, despite careful adherence to published directions for test administradition, the initial and final scores are not truly comparable. In many instances, they could be made more nearly comparable if the examinees were instructed prior to the initial testing that they should read as rapidly as possible while still getting the information needed to answer questions about the material. Fifth. estimates of individual and group gains during reading skill courses have rarely taken into account possible regression to the population means. Still more rarely have estimates of individual or group gains been compared with the appropriate standard error or standard error of measurement of the gains to determine their statistical significance. Procedures for estimating individual and group gains and for testing their statistical significance were presented by Davis in the *Tenth Yearbook of the National Reading Conference* (3).

Comprehension

Evaluation of the effect of training in reading skills on comprehension poses fewer practical problems than does evaluation of the effect of such training on rate of work in various reading skills. Analyses of the components of comprehension, using tests especially designed to measure the skills believed by most authorities in the field to be part of the process of comprehension, have been reported by Davis (4), Hunt (7), and others. Leaving aside minor differences in the interpretation of these studies, we are safe in concluding that knowledge of word meanings and ability to weave together ideas and to draw inferences and conclusions from them are the two most important mental skills involved in comprehension. Since the ability to weave verbal ideas together cannot be measured directly without the use of word meanings, these two fundamental elements in comprehension are inextricably intertwined. Of the tests now available for measuring comprehension in reading at the secondary-school and college levels, the *Cooperative Reading Comprehension Test:* the *Davis Reading Test,* Series 1; and the *Diagnostic Reading Test,* Survey Section, yield scores obtained under essentially unspeeded conditions. Of these only the *Davis Reading Test* yields a rate-of-comprehension score that is scored with correction for chance success. The rate-of-comprehension score is quite different from the conventional rate-of-reading score, expressed in terms of the number of words covered per minute. It is intended to measure the degree of understanding attained in reading the amount of material that an individual can cover in a specified time limit. Since random marking of responses to items that an individual has not had time to read during the time limit can increase his score when correction for chance is not employed in scoring a test of this type, in which the time limits are set to permit few examinees to finish, it is best to use rate-of-comprehension tests only if they are scored with the correction for chance success.

The correlation of scores on rate-of-comprehension tests and essentially unspeeded tests of comprehension are ordinarily rather high. For scores derived from Series 1 of the *Davis Reading Test,* for example, the correlation coefficient is about .77 among twelfth-grade pupils when entirely different items are included in the two comparable forms of the test from which the scores are derived. (5)

To make possible checks on the extent of comprehension during the measurement of rate of reading, at least two forms of four separate comprehension tests, based on the same material used for measuring rate of work for different purposes, should be constructed, equated, and provided with norms in the same samples of examinees. Long passages should be used to provide a basis for measuring rate of work in reading of various kinds. Care must be taken to use passages about which it is possible to prepare questions that can be answered correctly (more often than chance will permit) only if the examinee has read the passage.

Conclusions

The measurement of rate of work in reading for various purposes poses many difficult problems. Number of words read per minute is, in itself, a meaningless score. To be meaningful, it must be associated with a score indicating the extent of comprehension that has been attained. If the comprehension score is based on a test that permits the examinee to look back to the material he read while his rate of work was being measured, we cannot be sure how much he comprehended on the first reading. If it is based on a test that does *not* permit the examinee to look back, we cannot be sure to what extent we are measuring memory as well as comprehension. It is probable that speed-of-comprehension tests should be adopted as the standard form of measuring instruments for rate of work in skimming, in following the main thread of thought, and in understanding the main ideas and weaving them together. Rate-of-work scores expressed as words read per minute should probably find use only for research purposes in these three fields.

For measuring rate of work in learning the principal ideas in the material read, a weighted combined score based on words read per minute and number of questions answered correctly in unlimited time may be found most useful. For this type of measurement, the amount of time and the kind of activities permitted between the reading and the testing would have to be carefully controlled.

Tests of the types described in this paper for use with secondary-school and college students and with adults are urgently needed to permit realistic evaluation of improvement produced by reading skill courses.

References

1. Blommers, P., and E. F. Lindquist, "Rate of Comprehension of Reading: Its Measurement and Its Relation to Comprehension," *Journal of Educational Psychology*. 35:449-73, 1944.
2. Carlson, T. R., "The Relationship Between Speed and Accuracy of Comprehension," *Journal of Educational Research*. 42:500-12, 1949.
3. Davis, F. B., "The Assessment of Change. In E. P. Bliesmer and A. J. Kingston, Jr. (Eds.), *Tenth Yearbook of The National Reading Conference*. Milwaukee, Wisconsin: The Conference, 1961. Pp. 86-89.
4. Davis, F. B., "Fundamental Factors of Comprehension In Reading," *Psychometrika*. 9:185-97, 1944.

5. Davis, F. B., and C. C. Davis, *Manual for the Davis Reading Test,* Series 1. New York: Psychological Corporation, 1958. P. 13.

6. Flanagan, J. C., "A Study of the Effect on Comprehension of Varying Speeds of Reading." In *Research on the Foundations of American Education,* Official Report of the American Educational Research Association, 1939. Washington: The Association, 1939. Pp. 47-50.

7. Hunt, L. G., "Can We Measure Specific Factors Associated With Reading Comprehension? *Journal of Educational Research,* 51:161-72, November, 1957.

8. Laycock, F., "Significant Characteristics of College Students With Varying Flexibility in Reading Rate," *Journal of Experimental Education,* 23:311-30, 1955.

An Evaluation of Forty-One Trainees Who Had Recently Completed the "Reading Dynamics" Program

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Mr. Eugene Matthews has discussed with some of you a Reading Dynamics program in which he participated as a trainee and also helped to test. There were approximately 70 members in the group, all of whom had an educational background of what might be considered equivalent to a master's degree. All of them served in administrative or teaching capacities, and the group was probably above average in intelligence and achievement. The course was under the direct supervision of Mrs. Evelyn Wood, who served as the instructor of the group.

The course involved a pre- and post-testing program. One portion of the testing program involved eye-movement photography with the Reading Eye camera. After this course was completed I was sent these photographs for analysis. Testing with the Reading Eye had taken two forms: (1) Subjects were photographed reading standardized Reading Eye cards before and after the course, with this being followed by a qualifying examination. (2) Subjects were photographed after the course while reading the third chapter of the book, *I Looked Right,* by Elizabeth Denham. The supposition was that this latter form of testing would allow the trainees an opportunity to "warm up" on the first two chapters so that they might read "dynamically" on the third chapter. A comprehension examination of twenty-five questions of a true-false nature followed.

The attendees were shown a filmstrip describing the process of eye-movement photography. Briefly the process is as follows: After an oral pre-test, the individual reads a test selection appropriate for his level of achievement. While he reads, small beads of light are reflected from his eyes and photographed onto moving film. When he has finished, identifying initials are flashed onto the film. After a comprehension check, the filmed record is analyzed, and the reader's performance is compared with the table on national norms derived from a study of 12,000 cases. (See Table I for norms.)

TABLE I

AVERAGE MEASURABLE COMPONENTS OF THE FUNDAMENTAL READING SKILL *

Grade	1	2	3	4	5	6	7	8	9	10	11	12	Col.
Fixations	224	174	155	139	129	120	114	109	105	101	96	94	90
Regressions	52	40	35	31	28	25	23	21	20	19	18	17	15
Span of Recog.	.45	.57	.65	.72	.78	.83	.88	.92	.95	.99	1.04	1.06	1.11
Duration of Fix.	.33	.30	.28	.27	.27	.27	.27	.27	.27	.27	.26	.25	.24
Rate	80	115	138	158	173	185	195	204	214	224	237	250	280

*First grade averages are those of pupils capable of reading silently material of 1.8 difficulty with at least 70% comprehension. Above Grade 1, averages are those of students at mid-year reading silently material of mid-year difficulty with at least 70% comprehension.

(This table of averages is taken from "Grade Level Norms for the Components of the Fundamental Reading Skill," by Stanford E. Taylor, Helen Frackenpohl, and James L. Pettee, *EDL Research and Information Bulletin* No. 3. Educational Developmental Laboratories, 1960. Copyright, Educational Developmental Laboratories, 1960.)

Results

The average rate and comprehension scores of the trainees on the standardized cards used before and after the course was shown in Table II. You will note that 8 trainees dropped in rate; however, 33 increased. Notice that the group started at an exceptionally high level in terms of rate of reading. This reinforces Mr. Matthews' earlier comments about the apparent exceptional nature of the group being trained. You will remember from the table of norms for reading performance (See Table I.) that 280 w.p.m. is the average rate with comprehension for the college level. The trainees increased their average rate from 474 to 564 w.p.m., an increase of 90 w.p.m., or 20%. In most college or adult reading improvement courses, a 20% increase would not be considered substantial, particularly with such a superior group of students. One significant factor, however, that will become evident later, is the fact that approximately half of the rate gain was achieved through an excessive shortening of the duration of fixation, or the length of the eye pause.

TABLE II

AVERAGE BEGINNING AND FINAL RATE AND COMPREHENSION SCORES OF TRAINEES

AV. BEGINNING RATE:	474 w.p.m. (R.E.)
AV. FINAL RATE:	564 w.p.m. (R.E.)
AV. CHANGE	88 w.p.m. (45 w.p.m. —reduction of fixations 1.14 sec.) (43 w.p.m. —reduction in duration 1.00 sec.)
8 TRAINEES DROPPED	479 w.p.m. to 404 w.p.m.
33 TRAINEES INCREASED	475 w.p.m. to 603 w.p.m.
AV. BEGINNING COMP.	78%
AV. FINAL COMP.	81%
AV. IMPROVEMENT	3%

In most reading courses which provide for visual-functional and perceptual training as part of the total program, the greatest portion of a gain in rate results from a reduction in the number of fixations with only a slight change in the duration of fixation. In cases where the change in rate can be attributed largely to a reduction of duration, and where the final duration is exceptionally brief, the increased rate is usually the result of a greater effort or drive on the part of the student during the test and does not represent a real or lasting change in performance. Looking at these data, with this in mind, I would regard the gain as representing only 10%.

Remembering that the comprehension test accompanying the Reading Eye cards is a qualifying test only, note that the comprehension scores both before and after are sufficiently high to indicate that the students were reading in a manner that would provide a valid record of performance. You remember that the qualifying comprehension level is 70%.

TABLE III

BEGINNING AND FINAL PERFORMANCE SKILLS OF SUBJECTS WHEN READING STANDARDIZED READING EYE PARAGRAPHS

AV. FINAL NO. OF FIXATIONS	54
AV. REDUCTION OF FIXATIONS	6
AV. BEGINNING NO. OF REGRESSIONS	6
AV. FINAL NO. OF REGRESSIONS	10
AV. REDUCTION IN REGRESSIONS	4
AV. BEGINNING SPAN OF RECOGNITION	1.67 w.p.f.
AV. FINAL SPAN OF RECOGNITION	1.85 w.p.f.
AV. INCREASE IN SPAN OF RECOGNITION	.18 w.p.f.
AV. BEGINNING DURATION OF FIXATION	.21 sec./fix.
AV. FINAL DURATION OF FIXATION	.19 sec./fix.
AV. REDUCTION OF DURATION	.02 sec./fix.

Table III shows the general change in performance skills when the subjects read the standardized Reading Eye cards. While there is a reduction of fixations and regressions, it should be noted that a final number of fixations of 54 is excessive for the final rate achieved. This is explained by noting the exceptionally short final duration of fixation of .19. To provide perspective, it should be noted that usually an efficient reader assimilating material at 564 w.p.m. would more typically evidence 43 to 48 fixations with an average duration of .22 to .24. These data suggest, as mentioned previously, that the trainees were "forcing" their rate.

On the second test with the Reading Eye, the trainees were given an opportunity to read "dynamically" in a book. Illustrations 1 through 4 show comparisons of performance on the standardized cards with performance on the book material.

Illustration 1 shows the performance of trainee G. He read the first card at 492 w.p.m., and the second card at 533 w.p.m. He covered the book material at a rate of 3300 w.d.p.m. *(words dealt with per minute).* I use this term, "w.d.p.m.," to prevent confusion with his initial activity. His performance was 100% on the second standardized card, but only 36% on the twenty-five-item true-false test that followed the reading of the book material when he attempted to read "dynamically."

Trainee P in Illustration 2 was an exceptional reader to begin with, averaging 720 w.p.m. on the first card, and 784 on the second. He covered the material in the book at 3600 w.d.p.m., but scored only 40% on the book comprehension test. This is in contrast with his comprehension of 80% on the second standardized card. Note the regularity and uniformity of both graphs on the Reading Eye cards, for this characteristic will be referred to later. It is obvious that this person is an extremely efficient and well-organized reader when attempting to read in a conventional manner.

Trainee S began with a rate of 600 w.p.m., and attained a final rate of 914 w.p.m. You will note, in Illustration 3, that on the second graph he did not read all twelve lines of the card, showing that he was skimming (reading selectively) somewhat. This probably accounts for the decrease in comprehension from 100% on the first card to 80% on the second. Notice that his approach in covering the book material contains definite indications of a left-to-right visual survey. The variation in the excursions suggests that he read some lines and at other times moved in a left-to-right manner across a number of lines. His rate on the book material was 2400 w.d.p.m.

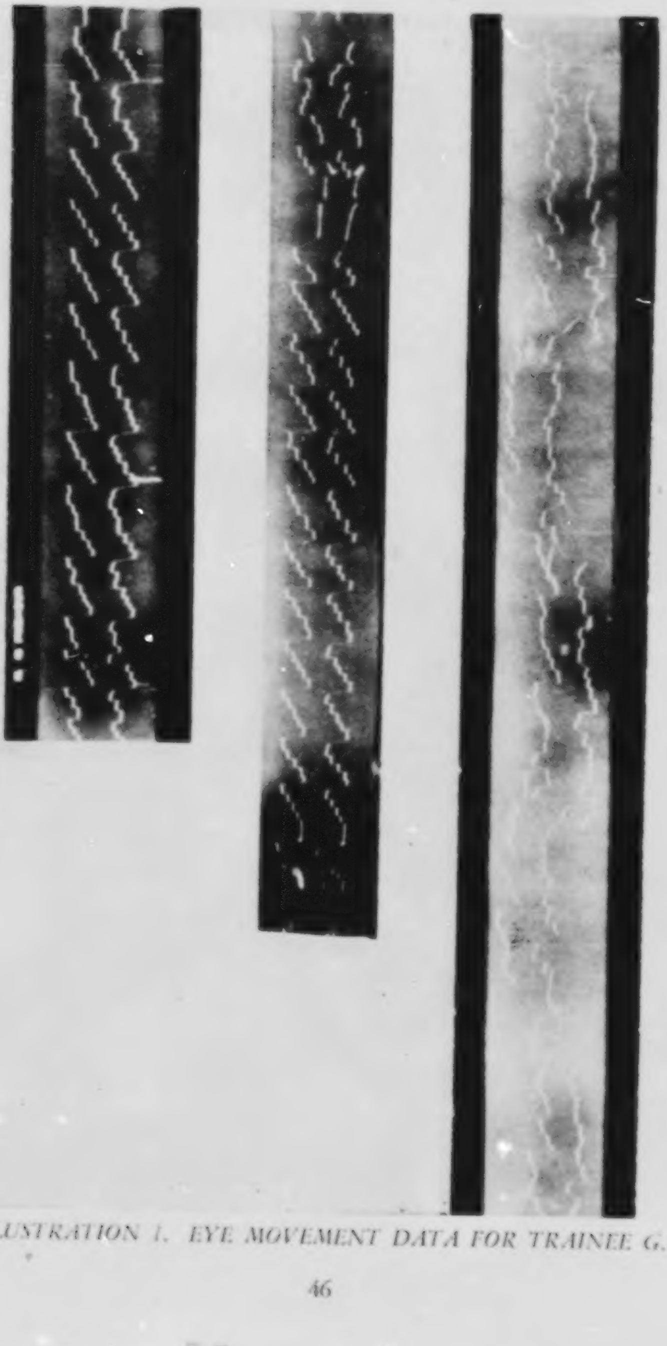

ILLUSTRATION 1. EYE MOVEMENT DATA FOR TRAINEE G.

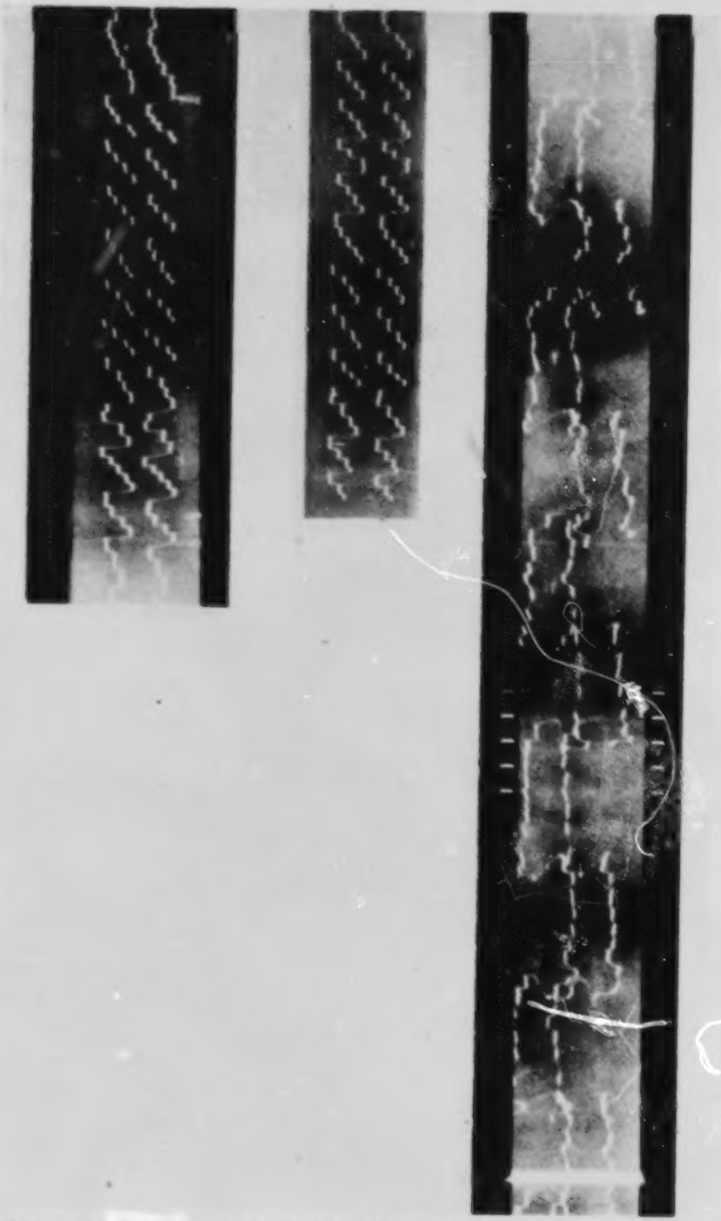

ILLUSTRATION 2. EYE MOVEMENT DATA FOR TRAINEE P.

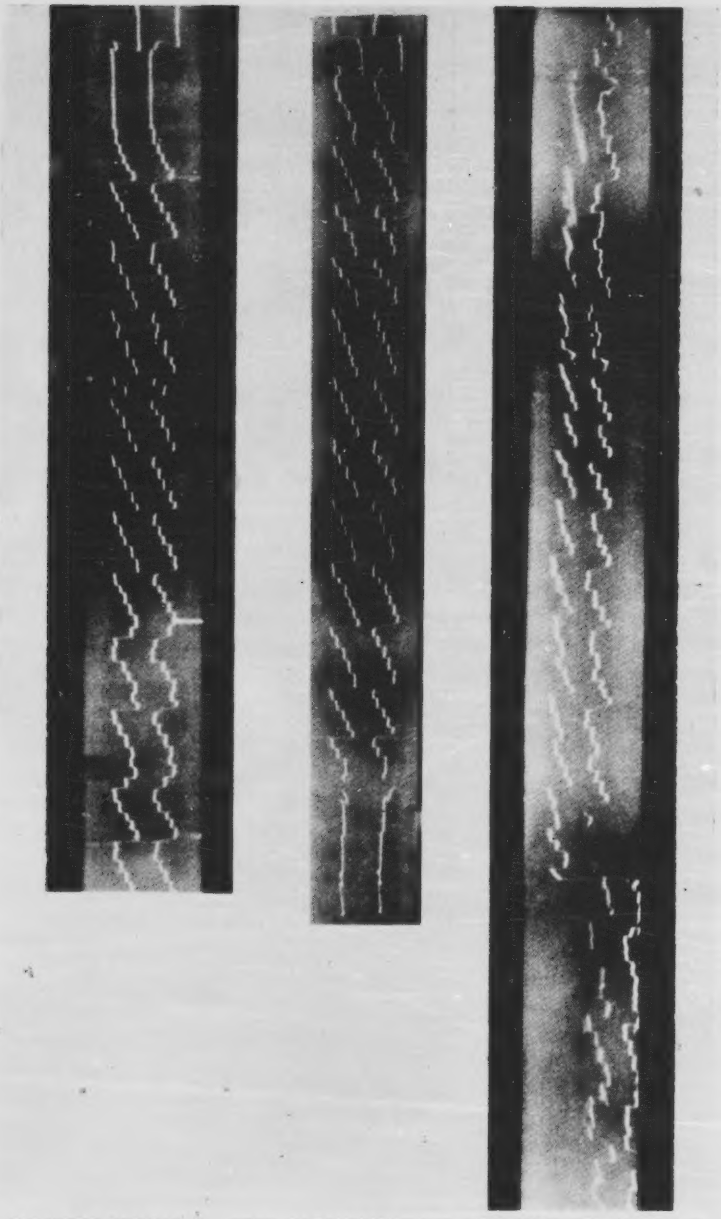

ILLUSTRATION 3. EYE MOVEMENT DATA FOR TRAINEE S.

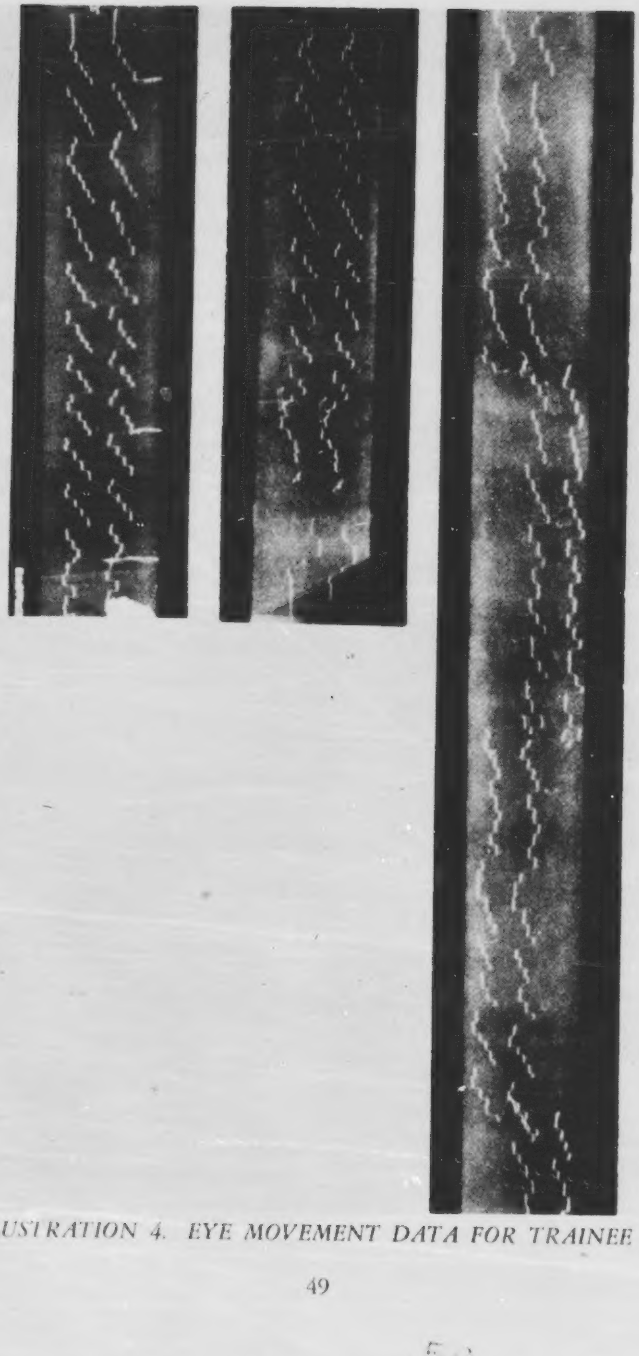

ILLUSTRATION 4. EYE MOVEMENT DATA FOR TRAINEE H

Trainee H started with an initial rate of 446 w.p.m. and increased to 498 w.p.m. Comprehension was 80% on both cards. This person covered the book material at a comparatively slower rate of 1350 w.d.p.m., and attained one of the best comprehension scores—68%. Notice in Illustration 4 the indications of the prevalence of left-to-right movement. The severe angles on the return sweeps that this reader is deleting lines — moving down several at a time — but is reading a number of lines on each page with a fairly deliberate left-to-right approach.

These four graphs were typical of those who improved. Because of time limitations, I have not shown graphs of the eight trainees who decreased in performance efficiency.

TABLE IV

AVERAGE GENERAL PERFORMANCE SCORES OF TRAINEES

(310 WORDS PER PAGE — 31 LINES — 10 WORDS PER LINE)

AV. SKIMMING RATE	(7.5 sec.)
AV. SKIMMING RATE (those who averaged 60% comp. or better)	2509 w.d.p.m.
AV. SKIMMING RATE	2232 w.d.p.m.
(left-to-right movements)	1798 w.d.p.m.
AV. COMP.	49%
AV. SKIMMING RATE (no left-to-right movements)	4030 w.d.p.m.
AV. COMP.	49%
AV. COMP. ON CHAPTER 3	51%

Table IV will provide an overview of the general performance of the trainees when given an opportunity to read "dynamically." These data indicate that those trainees who averaged 60% comprehension or better, the better comprehenders, read at a slower average rate of 2232 w.d.p.m.

Further analysis also indicates that the 16 trainees who covered the material with some left-to-right movements did read at a slower average rate of 1798 w.d.p.m., but did so with better-than-average comprehension—54%.

TABLE V

DATA ON ACTIVITIES OF TRAINEES WHILE COVERING PAGES OF A BOOK

AV. NO. FIXATIONS PER PAGE	31
AV. NO. FIXATIONS PER LINE	1
AV. NO. FIXATIONS PER PAGE (those who increased their rate)	27
AV. NO. FIXATIONS PER PAGE (those who decreased their rate)	42
AV. DURATION OF FIXATION	.25 sec.

Table V indicates the activities of the trainees while covering the pages of the book (attempting to read "dynamically"). They made an average of 31 fixations per page, and since there were 30 lines to the page, this could be interpreted as one fixation per line. But a close examination of the graphs indicates that many skipped some lines and read more of others. It is interesting to note that those who increased their rate on the standardized cards made distinctly fewer fixations per page on the book material than did those who decreased their rate. This suggests something that is quite logical — that the more efficient readers are the more efficient "skimmers," if one interprets their performance on the book material as skimming.

Notice that the duration of fixation on the book material has been extended to .25, a more typical duration for mature readers. This lengthening of the duration time is undoubtedly the result of the trainees' need for more time in which to perceive and organize the increased amounts of visual material with which they were attempting to deal.

Discussion

If I might, I would like at this time to discuss a number of points that have been raised by Mrs. Wood's demonstration at our conference last year, the statements found in her publicity, and the findings we have just reviewed.

Mrs. Wood has frequently stated that her students read so rapidly that they cannot be photographed by an eye-movement camera. Obviously they can be photographed.

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However, last year at this conference Mrs. Wood did indicate that General Electric engineers were attempting a new type of photography that would capture the movements of her students' eyes. My inquiries into this revealed that one engineer, an employee of General Electric, who was taking Mrs. Wood's course, stated that he had used a 35mm. camera, equipped with a telephoto lens, to photograph eye movements of her students through the use of timed exposures. I mention this because Mrs. Wood has at various times stated that the pattern of her students' eyes on a page sometimes forms a circle or a square and at other times she has said that there is absolutely no left-to-right movement since the eyes move straight down the page. The General Electric engineer told me that many of the students fixated on the center fold of the book, making no movement whatsoever, and read two pages simultaneously. It is important to note that none of the graphs in this study reflected such unique patterns. The unique patterns referred to may have been a result of inadequate photographic technique.

Mrs. Wood stated last year and has repeatedly stated that her people are *not* skimming, but rather are reading. This statement bears further scrutiny. Let us review what the graphs did indicate and a number of fundamental considerations about the act of reading. Is it possible for a person to identify and recognize all the words on a page when moving down the page in the manner indicated by the graphs in this study? Aside from the aberration and distortion that would be created by the eyes moving so rapidly, both in terms of the rapidity of the overlapping images (which would not allow adequate perceptual processing time) and the deteriorating of the image resulting from the saccadic movements (which are being employed in the atypical manner), it is important to note that studies by Feinberg (2), and by others, of foveal and peripheral vision have indicated definite limitations in terms of the ability of the eye to identify word forms very far away from the fixation point.

Illustration 5 indicates the "fall-off" of acuity of a person with normal vision in fixating on a 3½ inch line of print containing ten words. (I should mention that an average line of print in the book, *I Looked Right*, was 4 inches.) Notice that just a half inch away from the fixation point, the emmetropic, or normal, eye sees with only 50% acuity. One inch away on either side of the fixation point, acuity drops to the 30% level. It

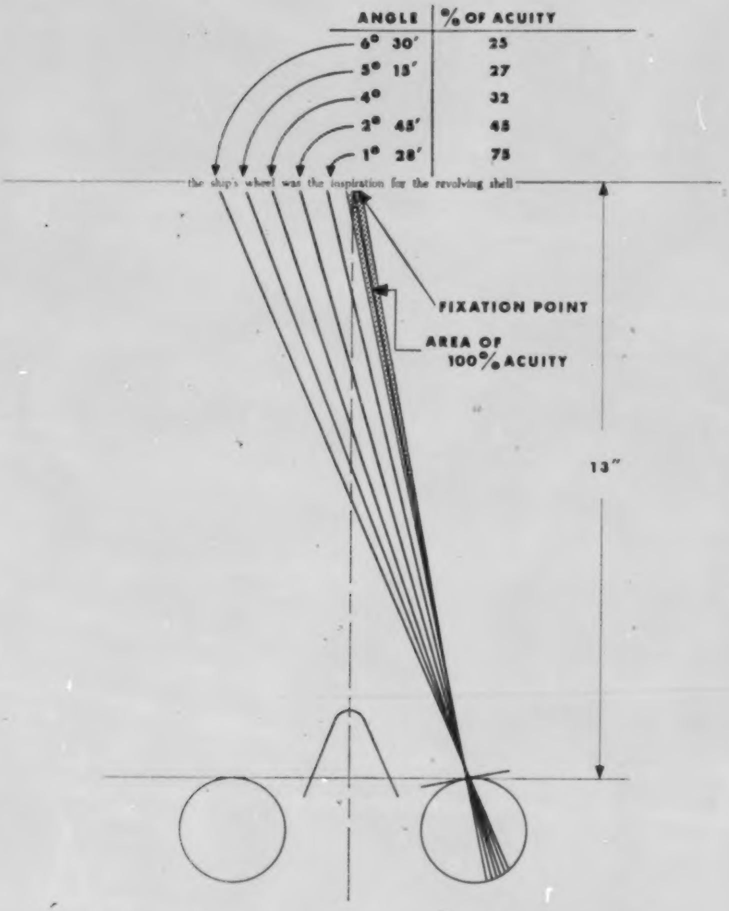
ANGLE
% OF ACUITY
6° 30′ — 25
5° 15′ — 27
4° — 32
2° 45′ — 45
1° 28′ — 75
the ship's wheel was the inspiration for the revolving shell
FIXATION POINT
AREA OF 100% ACUITY
13″

Illustration 5. Acuity "Fall-Off" at Various Distances from Fixation Point

would be physiologically impossible for anyone to perceive a 3½- or 4-inch line in a single fixation, even assuming that he was fixating at the center of the line, for form at the end of the line would be unidentifiable that far from the fixation point. This chart undoubtedly explains why most people seldom average even as much as a 2 to 2½ word span and rarely more, for the demands on our discrimination ability would be too great to permit a satisfactory reading situation from the standpoint of perceptual accuracy. An illustration of this is the hyperopic or far-sighted person who tends to make a greater-than-average number of fixations with shorter durations, most probably because of his greater than average "fall-off" of acuity. He has found by trial and error that this practice is more satisfying and accurate perceptually. It should be noted in passing that most of us would be totally unaware of this acuity "fall-off" because of the rapidity with which our eyes move—3 to 5 times a second.

One can become aware of more than 2 or three words if he stares at print; but this of course allows one more time to identify and process the image, and also eliminates distortions usually caused by overlapping images and the deterioration caused by saccadic movements. But, of course, this prolonged scrutiny does not take place in reading.

Considering the limitations of span, it is logical to hypothesize that Mrs. Wood may stress the development of "the look" as a way of increasing the amount to be encompassed. In developing "the look" a person might be trained to disassociate his vergence and accommodative functions. In other words, he might supposedly be trained to look with parallel lines of sight and to accommodate each eye individually to the page. Thus separate images are received by each eye, and if the mind can adjust to this dual reception, the amount that could be identified and recognized would be increased. It is important to know that in most cases in which vergence is disassociated from accommodation and where binocular coordination is below minimal requirements, there is a great tendency for a reader to suppress vision from one eye, or to "block out" one image in order to eliminate preceptual confusion. This is what happens in cases of strabismus, or crossed eyes. Thus the evidence to date indicates that "the look" as a perceptual phenomenon is not likely to be accomplished by many.

As the person becomes a mature reader, his oculo-motor pattern reflects his perceptual, functional, and organizational efficiency, and invariably becomes quite regular and predictable. We often say that he "rises above" the mechanics. If the trainees in this study had mastered the ability to *read* "dynamically," the pattern on the film when reading the book material should have reflected this high level of reading ability in a regular, systematic pattern or perhaps, as was suggested by Mrs. Wood, in an almost straight vertical line. An analysis of the graphs, however, indicates patterns that are very similar to those produced during skimming or scanning activities. These patterns are typically arhythmical and are of the type I have obtained in photographing the skimming activity of various readers. They also closely resemble, in terms of basic characteristics, the graphs obtained by Grayum (3) in her 1953 study of skimming, and by Moore (4) in his 1955 study. Further reinforcement for the difference between a skimming pattern and a reading pattern can be found in Dixon's eye-movement photography study (1) of the reading of university professors and graduate students. In this study, Dixon concludes that swift readers have a tendency "to read in a somewhat rhythmical fashion except when they resort to skimming, and then their eye movements are distinctly arhythmical."

Mrs. Wood has made the statement in the brochure distributed by the Reading Dynamics Institute that, "You may read an easy novel at 5,000 or 6,000 words per minute, but read technical material at 2,500 words per minute. You should be able to read all types of material by the end of the course at four to ten times your beginning rate." The graphs in this study did not indicate that any of these superior trainees were able to attain such performances with any reasonable degree of comprehension. As mentioned before, those who have the higher rates showed the lowest comprehension — an average of 45%.

Summary

In summary, an analysis of these eye-movement photographs shows that the gain exhibited by these seemingly above-average trainees was comparatively slight, and there are suggestions that their gain in performance could be, in part, attributed to drive and motivation during the testing, and that when they attempted to read "dynamically," they appeared to resort to a skimming and scanning-like process, with a substantial loss of comprehension.

The presentation of this data is in no way intended to discredit Mrs. Wood or those who advocate her methods. My purpose was to present objective data which might aid in better understanding her methods and in later evaluations of her techniques and their effectiveness.

References

1. Dixon, W. Robert, Studies of the Eye Movements In Reading of University Professors and Graduate Students." In ***Studies in the Psychology of Reading.*** Ann Arbor, Michigan: University of Michigan Press, 1951.
2. Feinberg, Richard, "A Study of Some Aspects of Peripheral Visual Acuity" (Parts I, II, III, IV). In February (Vol. 26, No. 2) and March (Vol. 26, No. 3), 1949, ***American Journal of Optometry and Archives of American Academy of Optometry.***
3. Grayum, Helen S., "An Analytic Description of Skimming: Its Purpose and Place as an Ability in Reading." ***Studies in Education,*** Thesis Abstract Series, No. 4. Bloomington, Indiana: Indiana University, 1952, 1953.
4. Moore, Walter James, "A Laboratory Study of the Relation of Selected Elements to the Skimming Process in Silent Reading," Unpublished doctoral dissertation. Syracuse, New York: Syracuse University, 1955.

The Future of Rapid Reading

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Before examining some of the related questions on the outcome of which the future of rapid reading will depend, I'd like to make a few observations on the state of reading today that seem to me to have specific bearing on the topic.

First of all, *reading is in the limelight.* On every side we find it being discussed. Parents, teachers, administrators, reformers, editors, and publishers are all eager to talk about it or to write about it. It is difficult to pick up a newspaper or a magazine that does not have some information, discussion, or criticism of reading. Many books have appeared during the past few years dealing with some aspect of the subject. No doubt about it, reading is in the news.

Second, *reading is in trouble.* If it is in the public eye, this is largely because it is causing a tremendous amount of dissatisfaction. Critics from every walk of life are challenging the methods by which reading is being taught. Angry voices call attention to poor readers and poor spellers all along the line from the early grades through college and adult levels. Parents are organizing groups whose main purpose is to work for better reading instruction. *What Ivan Knows that Johnny Doesn't* (Random House) appeared recently showing, purportedly, how poorly Johnny compares with Ivan, his Russian counterpart, in reading; *Tomorrow's Illiterates* (Little, Brown, and Co.), just off the press, heaps invectives on the state of reading instruction today; and *The Torch Lighters* (Harvard University Graduate School of Education) exposes the haphazard manner in which our teachers of reading are being prepared. *The Saturday Evening Post* reports: "statistics disclose that the graduates of some of our teachers colleges may know less than the students they are trained to teach." (3) These and other equally critical attacks remind us that things are not quiet along the reading front.

Third, *speed-reading is booming.* It is a "hot" topic, on everyone's tongue. The mere mention of reading evokes exclamations of awe as people discuss the phenomenal reading rates of Theodore Roosevelt or President Kennedy. Every reading institution, be it a clinic or center or a fly-by-night hole-in-the-wall, offers its clients an opportunity to learn to read faster. Some guarantee to double or triple rates and others hold out promises of speeds that approach, if they do not supercede, those of the super-sonic age. Even the staid Book-of-the-Month Club has enlisted the services and reputable name of Columbia University in a campaign to help readers increase their reading rates—and read more, and buy more, books.

Fourth, *reading must compete to survive.* Competition is keen, with many forms of communication and entertainment vying for the individual's time. Other mass media for conveying ideas and pictures are forging ahead, and new machines and devices are becoming increasingly more attractive and available. Are we reading as much or more than previously, or are we losing the battle of survival? There seems to be some difference of opinion on this. On the one hand, we find happy, optimistic reports that more books are being bought — or sold — than ever before; more are being taken from libraries; magazines and newspapers are gaining in circulation. On the other hand, we encounter gloomy reports on how much our children are not reading and of college graduates that seldom seek any worthwhile reading.

One thing certain from all of these facts is that reading is in a state of ferment. It is a turning point. Which direction will it take when it breaks away? Of one thing we may be sure, that as pressures force it to move toward new goals, rapid reading will play a part in future developments.

Related Questions

Now, to get to some of the related questions on the outcome of which the future of rapid reading will depend. All of these questions revolve about the idea of improvement. I hope we can answer them in the affirmative and that improvement *will* be forthcoming.

First, *Are we going to improve reading instruction in general?* With all the criticism that is being levelled at reading instruction, we are going to have to do something and do it soon. There are many sides to the problems involved; there is confusion over, for example, the best method or methods of teaching reading. Research and experience are constantly pointing out that reading is not a simple process and there is no one, single method of teaching it. Rather, it is a complex act requiring a combination of the most effective and appropriate methods. True, there will always be some controversy over the various problems involved, but I think we can say that eventually many of the present enigmas will be resolved along proven lines.

Second, *Are we going to improve our preparation of teachers of reading?* Here again, we must answer *yes — eventually.* We are slowly coming to realize that reading cannot be taught by just *anyone* — or by *everyone.* It takes a trained person to accomplish results; but how can we expect to produce a population of excellent readers when so many who are charged with the responsibility of teaching reading have had so little preparation? However, efforts are being made to improve teacher preparation by such national groups as the National Commission on Teacher Education and Professional Standards, the National Association of State Directors of Teacher Education and Certification, the American Association of Colleges for Teacher Education, and the National Council for Accreditation of Teacher Education. Also, in our own areas, standards are being formulated and endorsed by the National Council of Teachers of English and by the International Reading Association. As a result, we may be sure that improvement in the preparation of teachers of reading will be forthcoming.

A third question closely allied to the future of rapid reading is: *Are we going to up-date reading instruction?* We are living in an age of revolutionary developments: increased speed in every area, electronic computers of every imaginable kind, automation, atomic and nuclear power. It is said that science and machines have made their greatest progress in the last two decades, and we are on the threshold of even greater developmnts. Are our methods of teaching reading keeping pace with the new age? Should they be brought up to date, streamlined, to meet today's needs?

I think we can safely say there are better ways of teaching in every subject area including that of reading. This was proved during the war when new methods made possible the teaching of languages in a relatively short time. Since then new developments have taken place in other subjects. Forced by the Russian advances, *science* curriculums have been revised and updated to keep pace with current progress. In the field of English, a new approach to language structure and the teaching of grammar is being advocated. There is agitation for spelling reforms that will make our language more phonetic which would simplify and reduce failures in spelling and in learning to read. Last month the National Council of Teachers of Mathematics issued a publication entitled "The Revolution in School Mathematics — A Challenge for Administrators and Teachers." It explains the origins of the reforms and various methods of instruction available in mathematics. Another publication, issued by the National Council of Independent Schools, is entitled "The New Dimension in Foreign Language Teaching."

"Yet," *The New York Times* states, "at the very moment of triumph of the mathematics and science 'revolution,' the opposition to the reform of reading remains strong." (5)

Betts says, "It appears that reading is being taught as well or as poorly as it was one or more generations ago. But the 1840 or 1950 status of reading instruction is no better for the education of today's youth than 1840 concepts in physics or chemistry are for dealing with the problems of the nuclear-space age." (1)

I'm sure that these sharp criticisms of the way reading is being taught, along with all the other attacks on teacher-training and education in general, are not entirely valid nor, in many cases, justified. However, where there's smoke, there's fire, and we had better take an unbiased look at what we are doing in an effort to improve the situation and to remove ourselves from the line of fire.

New Developments in Reading

Turning to the field of reading, just what are we doing in the way of making improvements? Are we initiating any reforms, are we revising any of our methods? Is there any "revolution" in reading?

By and large, our efforts to improve reading instruction are mainly directed at improving existing conditions with very little actual change taking place. We stress the developmental aspect of reading, proper classroom organization, the role of diagnosis, readiness, appropriate materials, individual needs, multilevel materials, and so on. Also, there have been a number of experiments that have contributed to a better understanding of the problems we face. While all of these have no doubt contributed to our knowledge, it is difficult to see many clear directions or specific conclusions. Wouldn't it be wonderful if someone would come up with a publication such as "The New Dimension in Teaching Reading" or "The Revolution in School Reading — A Challenge for Administrators and Teachers" which would point out the way for us?

There are, however, two developments in the field of reading which might be classified as "revolutionary." One is in the field of learning to read at any early age, and the other is in rapid reading.

First, I am sure many of you have heard about the experiment going on in New Haven where three- and four-year-old children are, by using electric typewriters, learning to read, to type, to take dictation, and to write. Omar Moore, the Yale sociologist who is conducting this experiment under a Carnegie grant, has these children reading at a second-grade level in six months' time, and some of the more advanced ones are reading at the fourth and fifth-grade level. These are not all exceptional children, but represent the normal range of intelligence.

Certainly this is revolutionary. It confutes some theories concerning "readiness", those which contend that children are not ready to learn to read until they are six or seven years old, chronologically or mentally. While it is not applicable at this early stage to the teaching of reading in our schools, it does nevertheless point out that there are new ways of doing things in the field of reading just as there are in every field.

Revolution in Rapid Reading

The second revolution is in the field of rapid reading. It wasn't until comparatively recently that discoveries in eye movements called attention to speed in reading. Up to that time reading ability consisted of understanding that which was read without regard to time. However, the introduction of speed added a new dimension to the concept of reading ability, so that it became a composite of comprehension *and* speed. No one will disagree that the ultimate end of all reading is better understanding — or comprehension. However, in an age where the demands of time are so urgent, we must recognize that the comprehension should be accomplished in as short a time as possible. This need

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has brought to the fore new concepts of rapid reading which, together with the introduction of machines, have emphasized and, to some extent, glorified rapid reading. It now has reached the stage of becoming a rage, and is to some a fetish. People flock to take courses in speed-reading, paying up to $100 or $150 for ten lessons. Certainly we in the field are familiar with the misconceptions and the overemphasis that surround "speed reading."

Meantime we may well inquire whether this is a fad that will subside, or whether it is part of a movement, a revolution, that represents a bonafide advance. In an editorial Russell Stauffer has this to say:

> Are we ready now for a breakthrough in Reading? Are we ready to accept the idea that reading speaks of five to eight to ten thousand words per minute can be attained along with good comprehension? Are we now ready to free the reader from the shackles of inner speech? It seems that we are. (6)

This, of course, suggests reading speeds that even in the space-age sound fantastic. It raises the question of the degree to which rapid reading can go. We do know that most persons with proper training and adequate motivation can learn to double their rates of reading. We have seen some who can go beyond this, often achieving results which, though modest in comparison with several thousand words per minute, have been revealing.

Looking Ahead

To find out what some others think about the future of rapid reading, I contacted a number of authorities in the field. It would not be possible to read all the responses. However, in analyzing the comments, certain general conclusions may be reached.

1. *Rapid reading is a useful skill and we may expect further developments in it.*

> The ever increasing amount of published materials imposes additional demands for rapid reading. (David Russell)

> We can anticipate much more development in reading rates; for we have barely begun to tap the potential of reading capacity. (Lyle Miller)

> We are in one of those times when a rather exciting new prospect has opened up in reading. What the ultimate effect will be is difficult to say but much sound work at present augurs well for the future of reading improvement of which rate is a part. (Robert Bear)

2. *Rapid reading is being overemphasized and commercialized, causing misconceptions.*

> During this jet age, when our fastest planes can race the sun across the heavens, many people tend to make a fetish of speed. Many adult readers believe that, with proper guidance, they can learn to read all written materials at a rate of thousands of words per minute. This misconception is the result of blatant advertising done by a few commercial organizations more interested in the remuneration than in the services rendered.
> (Donald Cleland)

3. *Thousands of words-per-minute reading rates are impossible; for these are skimming rates.*

> Claims that one can learn to read at 10,000 to 25,000 or more words per minute are false. (Miles Tinker)

> Skimming of reading material of suitable difficulty for the reader is possible at the rate of several thousand words a minute. Actual reading at such high speed is not possible because of the physiological limitations of the eye. (Arthur Traxler)

> It is impossible for any human being to read faster than 800-900 words per minute when reading is defined as reading most of the words on a page. (George Spache)

> I am suspicious of what seem to be to be exaggerated skimming rates being fobbed off as silent reading rates.
> (William Kottmeyer)

> The people who deal in selling these thousands-of-words-per minute rates would be doing the field of reading a favor if they would coin another word, because what they are doing is *not* reading in the traditional sense. (Walter Pauk)

4. *Rapid reading is largely an individual matter and should be taught only to those who are able to benefit by it.*

> We need a greater recognition that programs to improve speed of reading effectively must be organized for individuals rather than groups. To institute a program to whip up the speed of a whole class or other group is not justified and will not work.
> (Miles Tinker)

> Eventually schools will differentiate between students who have the comprehension to read faster and students whose comprehension does not warrant faster reading. Then training will be given those who can benefit by it. (Constance McCullough)

> Recent systems seem to be best adapted to people who are already fairly rapid and efficient readers. (David Russell)

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5. *Rapid reading techniques can be taught at lower grade levels.*

> We have not yet determined when is the optimum time to begin developmental reading training. We know adults, college students, and older high school students make substantial growth in reading speed. Some junior high school students are capable of very constructive work in development reading. (Lyle Miller)

> Gradually, teachers will begin to employ at all developmental levels speed-encouraging practices which are natural rather than artificial, so that the effects of machine training will be less spectacular and less needed than they were when teachers made no effort toward speed and so did not achieve it.
>
> (Constance McCullough)

6. *There are other important skills and rapid techniques that should be stressed.*

> I think we know how to achieve high reading rates, but I am much more concerned about the problem of comprehension, which seems to me to be both more important and challenging.
>
> (William Kottmeyer)

> There are many other aspects of reading, as comprehension accuracy, ability to remember, ability to apply knowledge learned, skill in reading special materials, etc., which are more important to effective reading performance whether in school or in industrial work. (F. P. Robinson)

> The emphasis in all adult reading classes should be upon *speed of comprehension* rather than upon speed *per se.*
>
> (Donald Cleland)

> Training to handle materials more rapidly must stress skill in skimming, scanning, and previewing or reading selectively, as well as training in reading graphic aids more efficiently, and intelligent use of the organizational features of a book such as pre-reading questions, headings, summaries, post-heading questions, and the like. (George Spache)

7. *Flexibility of reading rate, rather than just rapid reading, is the ultimate goal.*

> The value of increased rate has been soundly based in a context stressing both adapting rates to purpose, materials, and difficulty to the individual, and improving comprehension skills.
>
> (Robert Bear)

> All readers should learn to adjust their reading speed to the nature of the material and to their purpose in reading it. An attempt to read with extreme rapidity certain kinds of material, as, for example, poetry, or a scientific treatise closely packed with difficult ideas, would be both foolish and futile.
>
> (Arthur Traxler)

> To read the words of gifted and inspired writers at breakneck speed is to flaunt their artistry. (Donald Cleland)

> The great need is still that of developing flexibility — the habit of sometimes reading slowly and thoughtfully, sometimes rapidly and selectively. (David Russell)

Despite the apparent reaction voiced in many of these statements, it is evident: *one,* that there is a recognition of the need for rapid reading techniques in the future; *two,* that current emphasis on speed should be tempered with certain cautions; *three,* that comprehension skills must not be neglected; and *four,* that flexibility of reading rate is the real goal of effective reading.

Conclusions

There are a few conclusions that it seems to me, will be tied in with the future of rapid reading.

First, regarding the relationship of speed and comprehension there has been a great deal of controversy and misunderstanding. Each element is in itself complex, having many facets. When they are combined, the possibilities for complications are compounded. Last year at the IRA meeting in St. Louis, I spoke of this relationship in testing speed and comprehension:

> "If it were possible to test each of these factors separately without influence from the other, our job would be somewhat simplified. We would give a test of comprehension and include no time element. This, of course, can be done. But when we come to test speed, it is impossible to omit comprehension. We must know something about how well the material was read—indeed, that it was read at all." (4)

The conclusion here is that these two skills are better off when they are kept apart. The best tests are those in which each is measured with as little influence as possible from the other, and the same is true for instruction in them. If we are going to teach rapid reading, include only a minimum of comprehension. If the individual, or the group, needs instruction in comprehension, we should focus on that; but we should not try to teach comprehension skills if our main purpose is training in rapid reading.

Second, proficient readers of the future will develop the ability to adjust their rate of reading to purpose and to the material being read; they will be able to read slowly and carefully at times and very rapidly at other times. The trouble with most readers is that they can and always have read slowly and carefully — word by word, for they have never been taught to read in any other way. What they want, and are seeking, is the ability to read rapidly which they have never been able to do. Thus, in developing flexibility, we must concentrate almost entirely on rapid reading and other rapid techniques as these are the skills that are missing from most reader's repertoire of skills.

It is regrettable that even today, the large majority of pupils are not receiving instruction in rapid techniques. How many children, as they make the transition from oral to silent reading, are taught that there is a difference in these two ways of reading? They should not be taught speed reading *per se*, but they can be taught "speed-encouraging practices" at all levels from the first grade on.

Third, in developing rapid reading techniques of the future, we will be constantly confronted with the problem of where rapid reading ends and skimming begins. As we have noted, rapid reading is usually thought of as reading without skipping any large quantities, probably only a few words per line or two; for physiological limitations suggest that about 1,000 words per minute is the maximum rate that can be attained. Anything over this rate moves into the area of skimming, which means to most of us, "reading" rapidly and superficially. However, there is evidence that certain kinds of highly specialized forms of skimming can be developed and will serve the purpose of the reading on many occasions. Twenty years ago Clifton Fadiman had this to say about rates:

> I do not believe dogmatically either in fast or slow reading. I believe tripe should be read practically with the speed of light and, let us say, Toynbee's *A Study of History* with tortoise deliberation. And most books are nearer to tripe than they are to Toynbee. But the trouble with practically all of us is that we suffer from chronic reverence. We make the unwarranted assumption that because a man is in print he has something to say, and acting on this assumption, we read his every word with scrupulous care. This may be good manners, but it's a confounded waste of time. (2)

It is probably for this reason, that the big majority of what we read is "tripe" and therefore worth only a superficial skimming, that there exists the present demand in speed reading.

Future courses in rapid reading will stress the importance of developing selectivity, of evaluating the material to be read, and then, of making the appropriate adjustment in rate.

Summary

The introduction of speed as a factor in reading ability has created a revolution in the field of reading. We are not entirely certain what eventual effects it will have on future generations of readers, but one thing we may be sure of it that the demand for reading greater quantities will continue to grow and, with it, the need for rapid reading techniques.

We look for improvements in the preparation of our teachers of reading; in the materials and methods of instruction; and in developmental reading programs that will carry the individual in a systematic and sequential manner, from kindergarten through college, building reading improvement of which rate will be a part. Overemphasis of speed will give way to speed-encouraging practices and to developing flexibility of reading rates, in which skimming and other rapid techniques will play a vital part.

In the future we can expect developments in new techniques, materials, and machines that will surely come along providing newer and better ways of teaching reading. We can hope that research will assume, more and more, the important role of pointing the way to better practices. And, finally, when new methods, new materials, and new techniques make their appearance, we have a responsibility to give them every opportunity to prove their worth, for the future will offer many advances we dare not even dream of today.

References

1. Betts, Emmett A., "How Well Are We Teaching Reading?", *Elementary English*, 38:377-81, October, 1961.
2. Fadiman, Clifton, *Reading I've Liked*. New York: Simon and Schuster, 1941.
3. Hill, Evan, "Have Our Teachers Colleges Failed?", *Saturday Evening Post*, November 11, 1961, p. 31.
4. Letson, Charles T., "Testing Speed and Comprehension in Reading." In J. Allen Figurel (Ed.), *Changing Concepts of Reading Instruction*, International Reading Association Conference Proceedings, Volume 6, 1961. New York: Scholastic Magazines, 1961. Pp. 225-228.
5. *New York Times*, Sunday, November 26, 1961, p. E7.
6. Stauffer, Russell G., "A Magnificent Ambition," *The Reading Teacher*, 14:74, November, 1960.

An Evaluation of Programmed Learning in Teaching Reading Comprehension*

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The current emphasis on teaching machines and programmed instruction is producing a healthy renewal of interest in teaching methods in all fields. Little has been done, as yet, to evaluate the role of programmed instruction in reading. This report is a summary of a preliminary study of the effectiveness of programming concepts as applied to the improvement of reading comprehension skills. Most available programmed materials are designed to teach the content of some academic discipline. We are interested in the teaching of a transferable skill, and are attempting to develop materials which will increase the probability that the learner will grasp the main idea of paragraphs and decrease the probability that he will make certain kinds of errors in interpretation.

Unlike most programs, the material used in our reading comprehension program does not require responses indicating understanding of a specific area of formal instruction. The content of the paragraphs used is relevant only to the extent that it represents an opportunity for the student to make certain kinds of discrimination responses. Our primary goal is not the understanding of the material in the program. It is the ability to read and understand the main idea of any paragraph.

The Program

The reading comprehension program consists of a series of panels with four instruction frames for each panel. The panels, containing one paragraph each, are presented on 5 x 8 cards.

The frames are exposed one at a time by the student who moves the panel card down a dittoed sheet of frames. The first four panels and sixteen frames teach a specific definition of "Main

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Idea", "Too General", "Too Specific" and "Irrelevant". The definitions taught in the early frames are the ones to be used in the rest of the program. One question of considerable interest is whether or not the student will be able to use any new comprehension skill in a situation demanding a different or even unspecified definition of "Main Idea". This is one aspect of the transfer problem referred to above.

Following the definition-teaching section, the student begins work on the skill-teaching section. After reading a panel of material, the student exposes the first frame. In it, the student sees a short summary of the paragraph. His job is to decide whether the summary is the Main Idea, or is one of the three types of errors he has previously been taught to identify. After writing down his response, he uncovers the correct answer, then moves on to the next frame. Within each set of four repsonses to a panel, "Main Idea" is correct only once, although any of the errors may be correct more than once, to reduce guessing. The concept of main idea is taught by practice in evaluating a summary and catagorizing it as complete or in some way erroneous. The skill appears to be what a good student does during independent study—read a section and succinctly summarize the main point.

The Experimental Conditions

There were two experimental conditions in this project. Condition EI will be called the weak program. It was designed as a partial control by minimizing the effects of three variables—programmed definition of the response terms, immediate reinforcement of correct answers, and small step progression from very easy to very difficult. In EI the students were merely given the introductory panels to read, without the accompanying frames. They did not get the correct answers to the skill frames until the next class following the training session, and they received the panels and frame sets in scrambled difficult order. In EII, called the strong program, the definitions were programmed for presumably better learning. The responses to each training frame were immediately reinforced or corrected, and the items were presented in a previously calibrated order of increasing difficulty. Both groups knew that they were participating in a research project designed to improve the efficiency of reading instruction.

As a base to evaluate any changes in paragraph comprehension score, a random sample of cases was drawn from the files of previous RSSC students. The cases in the sample had all taken a form of the paragraph comprehension test at the beginning and end of their instruction in the RSSC. Since they represent the effects of a variety of instructors and instructional methods, the control sample data are representative of measured improvement in a reading skill prior to the use of programmed techniques. To summarize, the overall design of the study is presented below.

Group	*N*	*Data*	*Procedure*
Control	28	Pre and post test	Selected from files at random
EI	28	Pre and post test	1. Paragraph instructions 2. Delayed reinforcement 3. Scrambled difficulty levels
EII	28	Pre and post test	1. Programmed instructions 2. Immediate reinforcement 3. Constant small steps in difficulty levels

Subjects

The students involved in this study were voluntarily enrolled in one of six reading improvement groups at the RSSC. They had been meeting in groups of 8 to 12 under one of four instructors for eight sessions prior to the start of the experimental sessions. For the study, each group was randomly assigned to EI or EII with the restriction that the instructors with two groups had one in each condition. The actual research took two class sessions, including pre and post testing. The tests were equivalent forms of the *Diagnostic Reading Tests*, Survey Section; Paragraph Comprehension. If the programs were effective, and if transfer of reading skill did take place, then the students should show some improvement on the post test, even though the pre and post testing measured general Paragraph Comprehension, not just "Main Idea." In addition, the students in EII should show more improvement than those in EI.

Results

The comprehension test scores were examined by means of analysis of covariance. Results appear in Table I. The observed F could have occurred by chance less than one time in 100. The results cast doubt on the null hypothesis of no difference between the adjusted treatment post tests.

Table I
Analysis of Covariance

Source	DF	ΣX^2	Σxy	ΣY^2
Among Treatments	2	49.14	91.43	193.15
Within Treatments	81	745.15	280.43	700.43
Total	83	794.29	371.86	893.58
Difference for testing among adjusted treatment means				

Source	$\Sigma Y^2 - \frac{(\Sigma xy)^2}{\Sigma X^2}$	DF	mean square	F
Among Treatments	-------	-----	-------	-----
Within Treatments	594.90	80	7.436	5.81**
Total	719.49	82	——	——
	86.47	2	43.235	——

$^{**}P < .01$

Table II
Adjusted Treatment Means and Scheffe Comparisons

	Control	EI	EII
$\bar{x}$	13.14	15.00	14.28
$\bar{y}$	13.78	17.07	16.92
$\bar{y}_{adj}$	14.15	16.75	16.87
$\bar{y}_{adj}$	.524	.521	.514

$\overline{Y}_{EI} - \overline{Y}_C = 16.75 - 14.15 = 2.60 \quad p < .01$

$\overline{Y}_{EI} - \overline{Y}_C = 16.87 - 14.15 = 2.72 \quad p < .01$

$\overline{Y}_{EII} - \overline{Y}_{EI} = 16.87 - 16.75 = .12$

The adjusted treatment means are presented in Table II. Scheffe tests (2) for *ex post facto* comparisons were made at the .01 level. The Scheffe technique makes possible a precise probability statement for differences tested after examination of the data. Both programs were significantly different from the control sample. However, they do not differ between themselves.

Discussion

The overall differences were quite gratifying. Automated instruction in reading skill seems practical, and the skill does appear to transfer. The confounding of the two experimental conditions makes it impossible to specify the relevant variables, however. The only discomforting result is the lack of a reliable difference between the conditions. The reader will recall that the study was designed to maximize these differences, while suggesting possible directions for future investigation. One of two explanations seems reasonable to account for the lack of differences between experimental groups. The first is that any type of self-instruction, in which the student does a maximum of responding, is more effective than the usual instructor-centered techniques used in teaching reading comprehension. In addition, of course, the data suggest that no matter what type of automated program is used, the final results will be the same. Although the first part of the argument is quite in line with programming theory, the second part is somewhat incompatible. The second explanation has to do with the attitudes of the subjects. The reader will recall that all students knew they were participating in a research project. Perhaps that knowledge had a motivating or "Hawthorne effect". It is conceivable that the student's desire to do well was strong enough to 1) produce the differences between the sample and the experimental groups, and 2) obscure any differences between EI and EII. Clearly, the next step is to draw a new sample and replicate the two experimental conditions. However, in order to cancel out the possible effects of extraneous motivation, the students should not be told of the research, and the program should be treated as a standard part of the reading improvement course.

References

1. Lumsdaine, A. A., and R. Glaser (Eds.), *Teaching Machines and Programmed Learning: A Source Book.* Washington, D. C.: National Education Association, 1960.
2. Scheffe, Henry, "A Method for Judging all Contrasts in the Analysis of Variance," *Biometrica,* 40:87-104, June, 1953.

The Implications of Closed Circuit Television for Teaching College Reading Courses

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University of Dayton

The University of Dayton Reading Center came into existence in 1952, as a course on effective study for entering freshmen, and was under the direction of the psychology department at the University.

It was soon expanded to take care of the students whose difficulties in specific courses seemed to stem from ineffective reading habits. The referrals came from the professors, in the main. The students were then placed under the direct supervision of one of the members of the psychology department.

In 1957, the reading program became a full-time service to the University, and was organized into regular class periods, following the general rhythm of the University, with a full-time director in charge. The program has continued to follow this pattern as a part of the University, and is now under the supervision of the Dean of the University.

The program has had several weaknesses which are in process of being corrected. One is that too many students were accepted for enrollment at any one time, thus making personal educational counseling virtually impossible as a part of the program. Another weakness was the impersonal instruction of the lecturer, in an attempt to meet every need represented in any class.

The program of the Reading Center is described in the following several paragraphs; the description includes the modifications made for closed circuit television.

The screening instrument used to obtain the students is the *Diagnostic Reading Test.* Those making a score hovering around the 40th percentile are eligible for the course, and are gently persuaded to enroll. This is done by the deans, for the most part, but referrals are also made by the guidance counselors and student personnel services staff.

The program is organized on an eight weeks' pattern. The student receives a total of twenty-four instructional hours in this eight weeks; these hours are distributed over the week in the following way: one class meeting as a small group of twenty students; one large class meeting in the closed circuit television reception room as a group of one-hundred to one-hundred-twenty; one laboratory-counseling period, in which he comes to the Reading Center for a laboratory practice and/or for counseling. The laboratory practice is mandatory; the counseling is optional unless he has been specifically requested to make the appointment.

The classes are constantly grouped and re-grouped on the basis of the quality of comprehension. This grouping, flexible and changeable according to the students' progress, depends on his previous successes.

Current subscriptions of magazines are always available for reading at free moments; the student has no choice but to read at various "free" moments throughout the class period, surrounded as he is by material begging to be read.

A reading autobiography is "extracted" from the student at the beginning of the course. The information from it is used in the newly formed counseling sessions. The questions asked include, "What do *I* think are my reading problems, if any? Do I like to read? If not, why not? If yes, what types of literature? What do I expect of this course? What do I intend to put into the course?"

A time schedule is called for, so that use of time may be evaluated both in the lecture given on efficient study procedures and may be discussed in the counseling session.

The counseling sessions are organized so that the instructor is able to see each student at least once in the eight weeks of his instruction. The student, however, may avail himself of as many counseling periods as he feels he needs. The usual duration of the period is fifteen minutes; the student signs his name on a paper set up for this purpose, and is reminded of the necessity of his keeping the appointment.

Although the closed circuit television phase of the course will be discussed in more detail later, it is appropriate to mention here that the lecture on television, at present, consists of study procedures. Attitudes and incorrect work habits are worked on, with questions given to the students over television and answers to them secured either in class or in counseling.

The regular class meetings consist of the use of films and the Controlled Reader. The students are grouped according to the comprehension derived from this exercise, or are removed entirely if the exercise seems to be too demanding on them. The better the group, the more difficult the material used.

At the end of the course, a retest is given on an alternate form of the DRT. An individual progress report on each student is sent to his dean.

The question now arises, what is the rationale behind closed-circuit television?

One of its direct benefits is the gradual elimination of a weakness previously mentioned, namely, the lack of time for personal contact between the instructor and the student. It is the opinion of the writer that this is its most important justification. The student feels that the instructor is more interested in him in class as a person, since he has had a chance to be seen individually between class meetings.

Putting the lectures on closed-circuit television is also resulting in better use of lecture time; in addition, the students seem to be giving more intense attention to the content of the lectures. Questions by the student or instructor are handled through a simple intercom system placed in the TV studio and in the lecture room.

The physical facilities of the course include the usual television equipment found in any closed circuit television studio. The administrator of the University television facilities is Professor George Biersack, Director of Educational Television; the reading program TV producer-director is Mr. Richard Beach, of the University staff.

The students' reception room contains approximately one television set per fifteen students. A proctor is in attendance at all times; this is where the materials are passed out by her; she takes attendance and supervises the class.

The television schedule was derived from the student's own schedule of classes made out at the beginning of the course. They were checked through for a common time, with other lecture periods provided for those unable to participate in the television series.

The plans for the future call for a more extensive use of this medium of instruction. The University has had closed-circuit television for approximately four years, and it is proving to be an economical way of providing instruction requiring all or part visual presentation.

Included in the plans for the future is a demonstration using the eye camera, with one or several students volunteering as subjects. Later, films of different kinds of readers will be shown via closed circuit television, with no identification being made. Discussion of the presentation will follow.

The University of Dayton feels that the student must be constantly developing as he goes through his academic curriculum, and must be provided with the best instruction available at the time. The Reading Center is endeavoring to cooperate by using the student's time in as an effective way as possible, to help contribute to this academic development.

The Utilization of Mass Media in the Improvement of Adult Reading

James Schiavone

Dade County Junior College

Within the past decade much emphasis has been placed on the techniques of reading instruction in the primary grades. Critics of education have questioned the educators and have even suggested alternate methods as being superior to those in current use. Comparisons have been made of the reading ability of students in the early 1900's with today's high school graduates. Critics such as Rudolf Flesch (4), Charles Walcutt (18), and Sybil Terman (16), have popularized their writing for the general public. Such criticism has served to bring attention to our schools and teaching techniques. This attention, which is hyper-critical at first, arousing emotion rather than reason, soon leads to better understanding of the problems considered.

Books

As a result of such popular writings, nationwide interest has continued to develop to the extent that many parents and educators have come to the realization that their own reading could stand improvement. Reading improvement books and workbooks, therefore, have found a ready market among college students and business and professional people. However, the prolific number of reading improvement materials at the adult level is far from the saturation point. Through a popular appeal, the medium of books has served to emphasize educational needs and has helped to point up reading deficiencies among educated adults.

Magazines

In recent years, a much larger reading audience has been approached through popular magazine articles. With regard to reading improvement, such articles may be categorized as follows: 1) Critical articles, 2) descriptions of reading improvement techniques, and 3) actual practice lessons to improve reading.

Some recent articles will serve as illustrations. In the first category, H. F. Ellis (3), in his article, "How to Read," pokes fun at "speed reading." He claims that such techniques prevent

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him from laughing or crying at the right time, because his eyes are far ahead of his emotions. In concluding the article, Mr. Ellis suggests a page-turning device to facilitate the rapid reading process. He further states that it would be much better if this machine could also do the actual reading—then the reader could be free, to utter nonsense phrases, undisturbed by the written word. Articles of this nature have served to minimize the fetish for speed at the expense of comprehension. Another critical but thoughtful article by Lawrence Galton (5) emphasizes the importance of a "multi-gaited" approach to reading. He indicates that speed reading per se, "poses more of a threat to good reading than TV was or ever could be." He cites examples of prominent people reading at fantastic speeds, and an unfortunate 16 year old prodigy of a speed reading school, who stated that he read 5,000 books in a year. Mr. Galton questions the value of this "reading." He feels that emphasis is no longer on the books one reads, but the speed at which they are read. Mr. Galton warns that we should not lose sight of the fact that some materials should be read at 200 wpm, while others could be read at 1200 wpm. The reader's purpose, and the nature of the material, should govern the speed. This is a valuable article, and explores a number of useful speed reading techniques.

Another critical article which deserves mention here, is G. Stevens' (14) "Faster, Faster," which appeared in the *Saturday Review*. Unlike Galton's article, this one is completely against the idea of rapid reading. The author concludes his article with the idea that the next step in speed reading is the mastery of "The Decline and Fall of the Roman Empire" over a cup of instant coffee.

Several popular-type articles have been written in the second category mentioned. These articles deal primarily with describing reading techniques and the results obtained. Sometimes the results reported seem fantastic, and consequently, cause a great deal of interest and concern. A consideration of some recent work will serve to illustrate this category. In the article, "Skipper of the 3 R's," P. L. Swift (15) describes Ion Pursell's program for illiterate adults. The article points to the philosophy of the "each one teach one" system of Frank Laubach. In fact, the same magazine issue contains an article by Laubach entitled "Each One Teach One." This is actually a written report of Dr. Laubach's account of his mission and his method, to Prof. Houston Smith over station KETC in St. Louis.

"Read Faster and Better" (8) presents an account of Evelyn N. Wood's techniques at the Reading Dynamics Institute.

A wealth of articles have appeared in popular magazines under the category of actual practice lessons to improve reading. Here is where the magazine can serve as an excellent medium for the improvement of adult reading. The efficacy of these articles would require investigation. The fact remains however, that magazine editors have been quick to capitalize on adult interests, and have published numerous articles designed to instruct in the reading process, and to give practice in reading improvement. Interest is so high that in some cases the article has been given top billing on the cover of the magazine. The December 1961 issue of *Pageant* lists a reading improvement article on it's cover (2). Some of these articles are extremely simple, such as one which appeared in *Better Homes and Gardens* (20). This article was entitled "Would You Like to Increase Your Reading Speed?" It merely presented five brief paragraphs on faster, more efficient reading.

A more extensive article was prepared by Vance Packard (6). This article, "How You Can Learn to Read Faster," gives specific suggestions and practice material on faster reading. The article draws from Nila B. Smith's book, *Read Faster,* and Paul Leedy's *Reading Improvement for Adults.* The article emphasizes self-help materials, formal courses available, and classes at colleges and adult education centers.

Adler's *Hard Reading Made Easy* (1) is an excellent account of pre-reading and skimming techniques designed to aid in grasping the essential ideas of great writers. The author indicates that effective reading techniques become increasingly important as more and more people show an interest in such subjects as science, philosophy, religion, economics, and political theory. The article further spells out a step by step approach to begin giving a book the "once-over."

E. M. D. Watson (19) has a popular article entitled "How to Read Faster," which appeared in *Cosmopolitan. Science Digest* (17) for October, 1961, and *Pageant* (2) for December, 1961, both have articles with specific suggestions and practice in the improvement of adult reading skills. Other articles have appeared in *Science Digest* (7) and *Good Housekeeping* (13). These recent articles serve to illustrate the fact that magazine editors have continued to exhibit a keen interest in this material.

Newspapers

Attempts to instruct adults in the development of reading skills have not been restricted to the magazines. Newspapers, recognizing the importance and tremendous interest in reading improvement, have also published reading improvement articles. It would appear that such articles in newspapers are even more significant than those in the magazines. Newspapers have a greater local influence and readership. The newspaper can present a more extensive analysis of the reading process through serialization. The daily presentation of reading lessons over a period of one or two weeks could have far reaching effects. At this writing, a reading series is appearing in *This Week Magazine* (9). This magazine is a newspaper supplement, appearing each Sunday in newspapers throughout the county. *This Week* has a circulation of over 14 million. The series is being prepared by William S. Schaill, President of The Reading Laboratory, Inc., New York. Mr. Schaill's articles include information and practice in various aspects of effective reading. As Reading Consultant for the magazine, he has served to advise the editors in presenting their materials in a more readable fashion. Under the various article titles are questions and preliminary remarks designed to stimulate reader interest. Headings and sub-headings are also presented in a manner designed to sustain interest.

In a recent communication with this writer, Mr. Schaill indicated that his formula for interesting, helpful, and successful articles, is simplicity and clarity. Response to similar materials published by the Reading Laboratory, Inc., has been measured by favorable sales. It is too early, at this time, to evaluate the response to the *This Week* reading improvement series.

Another newspaper series, on a smaller scale than *This Week*, was co-authored by this writer, and Philip E. Meyer, an outstanding journalist with the Miami Herald (12). The series, a seven part report entitled, "You Can Read Faster!", has been syndicated by the Miami Herald, and is currently appearing in newspapers in principal cities throughout the country. A brief description of the content will indicate the nature of the instruction presented.

The initial article indicated the broad scope of reading improvement. The various types of reading such as critical reading, study-type reading, and skimming, were briefly described. The series continued daily, to discuss the areas of improving comprehension, eye movements, organization in reading, the study type of reading with emphasis on Prof. Robinson's SQ3R technique, critical reading, the improvement of vocabulary, and practice in the skills of effective skimming.

Practice tests were included each day. These tests were constructed from news reports and articles appearing in other sections of the paper. Through the use of a table, the reader could determine his reading rate. A comprehension scale was also included. It was felt that the news articles were the best materials for the tests in that they were timely and readily available. Since the series was nationally syndicated, the authors were not in a position to construct the tests for other papers. Consequently, guide lines were prepared to assist the editor in formulating questions at any time, from articles in his newspaper. We also supplied the editors with rate charts corresponding to various article lengths.

The popular appeal of these articles, as they appeared in the Miami Herald, was enhanced through the editorial treatment. Attention getting headlines were employed, and the series enjoyed a front page run. The staff photographer prepared some excellent photographs which added interest to the series.

Throughout the series, mention was made of the effectiveness of classroom instruction and various home-study reading improvement materials.

At the present time, the effectiveness of the articles has not been determined. However, editorial interest is high by purchase of the series through syndication.

The Role of TV

Reading instruction via television has been employed at all levels. Most in-school programs are conducted via closed circuit. At the adult and college levels, these programs have not as yet been employed on a wide basis. Certain literacy programs have been presented via commercial television in parts of the South.

With regard to advanced programs for adults, relatively few have been developed. Mr. Carl von Vogt, of the Chicago City Jr. College, has been conducting an advanced developmental reading program for college credit. These programs are financed through grants. Prof. Leo J. Hanley, of Boston University, has conducted TV reading programs in his area. Several other communities and colleges have recognized the value of advanced reading programs via open-circuit television.

The reading improvement program, "Gateways to Reading," offered for credit through the Dade County Jr. College, Miami, has been described in two articles (10, 11).

The effectiveness of a television series is contingent upon organization, presentation, and the skillful use of reading improvement materials. The Dade County Junior College series, presented via ETV Channel 2 in Miami, encompasses the broad field of advanced reading skills. This includes lessons and practice in speed of perception and reading rate, vocabulary development, paragraph and sentence comprehension, intensive reading, broader meanings in reading, evaluation of writing, and the separate skills of reading. Lessons, assignments, and other data necessary for the course, are presented by means of a study guide.

Effective administration of the reading improvement material is assured through coordinating their use with the television lessons. The following materials are successfully employed by the "Gateway" series: Doris Gilberts' *Power and Speed in Reading;* Norman Lewis' *Word Power Made Easy; American Essays,* edited by Charles Shaw; *Gateways to Reading Study Guide,* and *Controlled Reading Workbook,* prepared and edited by the instructor; Educational Developmental Laboratories equipment—Controlled Reader and Tach-X Tachistoscope.

An important highlight of the series is the monthly test-conference period. These class sessions are reserved for students enrolled for credit, and represent 15 hours of laboratory work. Questions, comments, tests, and practice exercises are handled during these periods. In this manner, the credit students are given special attention. Since Channel 2 is on open-circuit we are also obligated to thousands of non-credit views. Many of these viewers purchase the materials and work along with the lessons.

Every effort is made to relate the programs to our non-credit students. Each program is an entity in itself, covering some phase of the reading process. Descriptions of each lesson are published in the television listings of the local newspaper. Also, a complete schedule, listing the dates and topics, is available on request.

Individual consultation services have been set up for all interested viewers. These services include telephone contacts, written correspondence, and individual counseling.

In connection with this television series, a preliminary statistical analysis of test results, based only on percentiles, has been prepared. A more extensive program of testing and experimentation is being planned for the future. The present analysis of the testing program, which consists of the *Nelson-Denny Reading Test for High School and College*, Revised, indicates results that are statistically significant at the .01 level. Farther, the median percentile was 60 on Form A, and 71 on Form B. A comparison of percentiles of students enrolled for a similar course, taught in the classroom by the same instructor, indicates that improvementwise, the TV students did better than those in the classroom. An analysis of raw scores, which we are presently undertaking, should yield further information. We plan to publish this data when it becomes available.

Implications for Reading Instruction

The fact that numerous popular articles have been, and are continuing to be, published in the area of reading improvement, points up the need and interest of the public for this material. The editorial requirements for the nation's leading magazines, have frequently resulted in the publication of reading and vocabulary improvement materials. The recent interest in newspapers and newspaper supplements for reading improvement materials is a further indication of this fact.

It is evident then, that reading improvement materials do have a place in the media of magazines and newspapers. It is interesting to note, that thus far, much of this work is not contributed by reading specialists or other professional educators. There is need for more professionally oriented materials for the mass media.

The utilization of television in literacy and developmental reading programs has proved its usefulness and effectiveness. It is unfortunate that the current offerings are on such a small scale. An effective developmental reading program for TV can and should be developed for distribution to stations throughout the country. There will be vast implications for such a program, given the scope and audience of such projects as the Continental Classroom, and the Sunrise Semester. Where specialized courses in these projects such as physics, biology, history and social studies, would appeal to a limited audience, a reading improvement course would have universal interest. A well organized, well supported, TV reading program at a national level, could mean better reading skills for millions of adults.

Research Needed

Further research is needed to develop more effective ways and means to produce TV reading programs for adults. Methods of evaluation, and a continuing study of student progress is indicated.

Setting up a large scale program, and a study of such a program, may reveal facts important toward a fuller understanding of the complex reading process.

In utilizing magazines and newspapers to present lessons in reading improvement, research is needed to test the effectiveness of the material, and the degree of progress made by readers who diligently apply the methods and techniques suggested.

Conclusions

The utilization of mass media in the improvement of adult reading, has been established through materials and programs already presented and currently existing. Through the utilization of mass media, educators have a most significant avenue of communication. Through this communication, the educator is able to guide, instruct, and enrich the lives of millions. The implications for reading instruction are vast and the need and opportunities for research are evident.

References

1. Adler, Mortimer, JP., "Hard Reading Made Easy," *Readers Digest*, December, 1958, pp. 81-83.
2. Anapolle, Louis, "The Right Road to Rapid Reading," *Pageant*, December, 1961, pp. 28-36.
3. Ellis, H. F., "How to Read," *Atlantic*, October, 1957, p. 193.

4. Flesch, Rudolf, *Why Johnny Can't Read*, Harper and Brothers, New York, 1955.
5. Galton, Lawrence, "2000 wpm—But is it Reading?" *New York Times Magazine*, August 26, 1961.
6. Gunther, M., and V. Packard, "How You Can Learn to Read Faster", *Popular Science*, September, 1956, pp. 84-87.
7. "Limit to Reading Speed," *Science Digest*, August, 1957, p. 28.
8. "Read Faster and Better", *Time*, August 22, 1960, pp. 41-42.
9. Schaill, William S., "Read Better—Read Faster". (A series appearing periodically in *This Week Magazine*, 1961-1962.)
10. Schiavone, James, and Oliver E. Camacho, "A Reading Perspective", *Journal of Developmental Reading*, Winter, 1961, pp. 77-86.
11. Schiavone, James, "Reading on Open-Circuit TV-Adult and College Level". In J. Allen Figurel (Ed.), *Changing Concepts of Reading Instruction*, International Reading Association Proceedings, Vol. 6, 1961. New York: *Scholastic Magazines*, 1961.
12. Schiavone, James, and Phil Meyer, "You Can Read Faster", *The Miami Herald*, September 17-23, 1961.
13. "Some Good Ways to Speed Up Your Reading." *Good Housekeeping*, April, 1959, p. 171.
14. Stevens, G., "Faster, Faster", *Saturday Review*, August 26, 1961, p. 22.
15. Swift, P. L., "Skipper of the Three R's", *Coronet*, August, 1957, pp. 148-150.
16. Terman, Sibyl, and Charles Walcutt, *Reading: Chaos and Cure*. McGraw-Hill, New York, 1958.
17. Vandewater, M., "You Can Learn to Read Faster". *Science Digest*, October, 1961.
18. Walcutt, Charles, *et al. Tomorrow's Illiterates: The State of Reading Instruction Today*. Boston: Little, Brown, and Co., 1961.
19. Watson, E. M. D., "How to Read Faster". *Cosmopolitan*, August, 1960, pp. 74-75.
20. "Would You Like to Increase Your Reading Speed?", *Better Homes and Gardens*, September, 1961.

An Enthusiastic Approach to Speed and Comprehension

Marty Dummett

West Bend, Wisconsin, High School

In West Bend High School, which is located approximately thirty miles north of Milwaukee, we have what we believe to be the only high school Developmental Reading Laboratory in the State of Wisconsin. Within this laboratory we have thirty Shadowscope reading pacers, a tachistoscope, SRA reading boxes, a set of Paul Witty's books, McCall Crabbs test booklets, a controlled reader, the Iowa High School Films, Cosper and Griffith *Essays,* Elizabeth Simpson's books, Triggs diagnostic testing materials, books to be read with the pacer, and other reading and instructional materials.

Our Developmental Reading Laboratory program involves sophomore and senior students. These students come to the reading laboratory twice weekly as a part of their regular English program.

Having this fully equipped reading laboratory led to a project concerning speed and comprehension. This project involves sophomore students who are participating in the reading laboratory and a control group of students who are not in any way exposed to laboratory training.

A brief outline of the project is as follows:

1. Purpose
   - A. To determine whether a reading laboratory with shadowscope, SRA, Essay, etc., causes significant reading achievement gains over regular English classes in which reading rate and comprehension are not stressed.
   - B. To secure additional data on reading learning to locate possible areas for future study (learning curve).
   - C. To study individual growth rates apart from innate ability and prior reading achievement.
   - D. To determine the relationship within our group of success in reading achievement in the laboratory to 1) prior academic achievement, 2) prior reading achievement, and 3) IQ.

2. Design

A. For studying individual growth (1-C) and relationships of reading gain to various factors (1-D), the *Diagnostic Reading Tests* will be administered before and after the exposure period to all students in the laboratory. Results will be rated. Correlations of reading test scores with IQ, with prior academic records, and with prior achievements will be determined.

B. To satisfy 1-B above, correlated groups will be established with homogeneity in the areas of IQ, prior reading speed, prior reading comprehension, prior academic achievement, sex, age, and grade.

C. SRA tests will be given at 2-week intervals to secure an approximate learning curve.

3. Measuring Devices

A. For pretesting and posttesting, forms of the *Diagnostic Reading Tests* will be used.

B. For obtaining data on rate of learning, both experimental and control groups will take successive SRA reading tests at two-week intervals.

C. All factors in selection of groups are to be statistically analyzed for variance and to be held within the limits of not being significantly different.

D. All results are to be analyzed statistically to determine the probability that results may be attributed to the experiment and not to chance factors.

We, as teachers, know that the mind controls the reading process; therefore, it is important for us to train our students to recognize this fact. If reading is a thinking process, then it must be accompanied by the desire to improve oneself. The student must be motivated; he must have interesting and challenging materials, good lighting facilities and conditions suitable for reading training. He must be given a basic understanding of eye movements or fixations, and he must have the fundamental basic reading skills.

My students are urged to realize that, if they are interested in increasing their speed of reading, they must make a challenge out of their time at the pacer and must work intently with essays, films, and other follow-up materials. Many students, after nine weeks, have commented concerning their ability to read materials outside of the laboratory at a much faster rate and with more competence. Reading is a skill which takes work, practice, desire, motivation, and intelligence. Students who are interested in increasing their speed and comprehension usually do show progress.

One of my students has more than made a challenge out of her time in the reading laboratory. She uses a method of what we believe to be paragraph reading. She absorbs ideas rapidly with excellent comprehension. Her accomplishment has come from an enthusiastic approach to all of the materials and devices used in the reading laboratory. Her starting rate at the pacer was five hundred words per minute. At the end of nine weeks of training in the laboratory, she was reading at a rate of three thousand words per minute with her lowest comprehension score being eighty percent. The last SRA test which was given for our research project was read by this student in fifteen seconds at a rate of over five thousand words per minute. Her comprehension score was sixty-five. One of my questions is, what should I, as a high school teacher, do to keep this type of reading student challenged in our reading program?

Teaching materials and mechanical devices, although an aid to speed and comprehension, can never replace the really interested, well-trained, and enthusiastic teacher in the secondary school reading program. The reading teacher's greatest responsibility is enthusiasm.

Student Attitudes Concerning a Law School Reading-Study Program

George L. Watson

George L. Watson and Associates

Few, if any, studies have been concerned with the results of courses which have been evolved from commonly used methods of teaching reading but are directed toward a definite, defined and narrow goal. Many analyses of adult training programs have been made, results have been evaluated, and methods and teaching procedures have been suggested. Few of these studies are concerned with the teaching of a homogeneous group, so far as the area of their study is concerned. This paper deals with the adaptation of developmental reading techniques to the area of legal reading. So far as can be ascertained two institutions of higher education in the United States give courses specifically planned to teach the law student how to read and study.

Evaluation of such a program may suggest trends which will indicate whether the methods we are using are beneficial and seme changes which we might make that will improve some of our adult programs. This is possible because the population from which this information is derived is relatively mature; should be capable of subjective analysis of the effect of the learning processes to which they have been exposed.

The Study

This study is an evaluation of the attitudes of eighteen law students, ranging from fifty-one years of age to twenty-two years of age, as these attitudes were revealed by questionnaire. The mean age of the group is thirty-one and six-tenths years. All but one are working full time, have executive or junior executive positions, all have completed four or more years of college Statistics on this group have been accrued for over two years. During that time sixty-four students were trained. Correct, current addresses were available for forty-two of these students. Questionnaires were sent; nineteen questionnaires were returned. Of these eighteen were valid.

Of the eighteen students whose answers were evaluated, 12 had been dropped from school, four had bee in school a year or more at the time they were questioned and two were trained last summer. In the interim from training to the time of reviewing the questionnaire five students were readmitted to school. Nine had not been readmitted either because they had not completed readmission requirements or had not applied.

All the men involved were given the Cooperative Reading Test, advanced form, the Diagnostic Reading Survey, the Inglis Vocabulary and a Study Habits Inventory, modified from Wren's original version. They were appraised of their results and given an indication of the type of training they were to receive. Post training testing was given the majority of students; all who were applying for readmission to school were tested. To date no test-retest data has been accumulated on a control group comparable to those students who returned the questionnaire. Since several of the questioned group have graduated, others vary in academic standing from second to third year students, and still others have not returned to school, no grade follow-up is possible. Consequently, analysis of findings will be confined to questionnaire data.

The questionnaire items concentrated on four areas; vocabulary learning environment, training areas which the student felt benefited or did not benefit him, factors he felt responsible for poor test performance, and possible suggestions he might make for improving training procedures.

Method of Teaching

Prior to beginning the training of legal students, the author, by the Dean of The John Marshall Law School's request, sat in on and participated in the Dean's course in Case Analysis. He also completed several courses in the school. This was to assure that he was familiar with the needs of legal students.

As a consequence of this experience the author subjectively arrived at what he felt were requisites of such a course. The following should be taught:

1. Development of facility in determining main point.
2. The use of SQ3R technique.
3. Development of a more extensive general vocabulary.
4. How to skim properly—(a) for continuity (b) for detail (c) to see relationship of detail to main idea.

5. How to skim cases — after skimming and reading to make notes from memory.
6. How to plan and distribute learning.
7. How to make notes, to combine note taking with distributed learning (a) for immediate learning (b) exam preparation.
8. How to prepare for and take examinations.

Training was independent of and extraneous to regular school courses and to the school. In addition to the reading training many of the students were required to take courses in English History, American Political Science, and Accounting to complete survey courses which help the law student as background information.

Training consisted of twenty hours of intensive work, in small groups or on a semi-individual basis. The material used was obtained from no standard training manual, but rather was material the author had found to be a rich illustrative source of whatever aspect of training he was emphasizing.

Methods were first illustrated in general literary or essay type material such as the average young executive will meet in day by day reading. As training proceeded into the area of study skills and skimming, material from legal text books, known to the law student as the horn book, and material from case books was used to illustrate the method. The student was shown how to evaluate the sequential idea development of the books by both skimming and surveying. The value of obtaining perspective concerning the organization of the chapter was emphasized. He was shown how to evaluate the sequence with which cases are developed, to relate this to the development of his courses and text books.

Concommitant with this he was shown how to use the plan of the chapter to plan and distribute learning so that the amount of material he must read and learn was reduced to a quantity which could be easily assimilated, more readily learned. In other words he was shown that from six to twelve pages of learning, per night, per course is preferable to forty to sixty pages in one sitting.

Then, he was taught how to make notes properly so that he could immediately recognize major areas of knowledge, especially points of law. He was shown how to use the margin of his note paper to list subtopics, or points of law to be known. He also learned that underlying these points of law were a set of facts, a series of events or conditions, that constitute a problem. These involve a generalization which must be recognized in future life or in examinations if he is to understand what law applies, to what conditions, that constitute a problem. These involve a generalization which must be recognized in future life or in examinations if he is to understand what law applies, to what conditions, and why it applies.

Additionally he was shown that the note making forms suggested helps the student obtain an overview of the course, the broad areas of knowledge covered and of the specific topics included in each area of knowledge. Since most were working they were urged to use these listed areas and subtopics to establish a mental set for reminiscence and self-testing of memory of content. In this way they could work from the general, to the specific, and review a portion of their work daily. The fact that this could be done on the bus, in the car, while shaving or at lunch and should enhance learning was mentioned repetitively.

Last, these men were shown how to plan for examinations. Instructions were given in how to use the organization of the text, the lecture notes and reading notes to plan distributed review. They were then shown how to read and had practice in extracting information for examination questions, in organizing pertinent facts and deducing their answers.

The Findings

The questionnaire returns revealed the language environment in which these students believed they found themselves: at home, at work, with associates and with friends. Table I summarizes these opinions. "Poor" language environment was considered sixth and seventh grade; "Average", eighth to ninth grades; "Good", eleventh to twelfth grades; "Excellent", college level.

TABLE I
SUMMARY OF DATA RECEIVED FROM QUESTIONNAIRE

LANGUAGE ENVIRONMENT	POOR	AVERAGE	GOOD	EXCELLENT	TOTAL
AT HOME	3	4	3	6	16
AT WORK	0	5	6	6	17
WITH ASSOCIATES	0	6	6	5	17
WITH FRIENDS	0	2	10	5	17

TABLE II
TRAINING METHODS CONSIDERED HELPFUL

	Yes	No.
SQ3R	12	4
Skimming	16	1
Case skimming	13	2
Organizing Case outlines	12	3
Organizing Notes	15	3
Distributed learning	7	5
Planned reviews	13	1
Controlled Reading	12	1

TABLE III
FACTORS INTERFERING WITH EFFECTIVE TEST WRITING

	Yes	No	Maybe
Too emotional, excited or concerned with outcome	10	6	1
Lack of preparation	3	2	12
Not enough time to prepare	3	3	12
Difficulty expressing yourself clearly	7	5	5
Difficulty predicting what you should know	4	6	7
Incorrect type of preparation	3	8	6

The training methods considered helpful by the students in the sample appear in Table II; factors which they believed interfered with their test performance in Table III.

Additional suggestions from this sample of students for the improvement of the course included four requests for help with writing skills, three for more individual attention, and four for more work on rate of reading.

One common complaint of students who are taking vocabulary training concomitantly with reading training is that they do not have an opportunity to use the new words they learn. Although there are several types of vocabulary, use is essential to the learning of any of the types, therefore, ascertaining whether there is an environmental opportunity to practice what they learn is important. Since all these men's associates in work or leisure had good to excellent vocabularies we can conclude a lack of opportunity to use what they learned did not exist.

Their reasons for their academic difficulty should be meaningful. Three listed lack of interest; three were related to environmental factors. Nine had difficulties the course sought to remedy: comprehension or vocabulary weakness. One listed immaturity as the cause.

Perhaps it is meaningful that the antagonism which would ordinarily result from being required to take training did not appear. Only one questionnaire was frankly antagonistic. Seventeen individuals felt the training was helpful. Of these, it must be remembered, over one-half of the students had not been readmitted. The one antagonistic return was from an enrolled student.

The returns concerning methods used in training are also enlightening. Some of the men were given machine training in conjunction with the course. Eleven out of twelve thought it beneficial. The survey technique was thought important by the majority, but skimming and the planning of reviews were believed the most valuable of the taught techniques. Next in value were the organization of notes and case outlines. Of least value or least used was distributed learning.

An evaluation of the difficulties they felt responsible for poor examination writing may clarify some of these answers. Few felt they were unprepared. Most felt they had enough time. One can infer they could understand that they needed to change their reading style, but not their basic time use habits. Perhaps they lacked the self-discipline to change.

One question persistently bothers the teacher who is training adults. Do they need learn how to review? The implications of this study are that adults from the type of population this questionnaire samples, do need and do use these skills.

Perhaps most enlightening of the answers as to why they experienced the difficulty in exams is the factor of emotionality, Ten students answered yes, six maybe. Twelve students expressed difficulty in expressing themselves as casual or perhaps casual of trouble.

Feelings about predicting exams questions and incorrect type of preparation were mixed. The trend is toward experiencing little or no trouble in predictions.

To draw valid statistical conclusions from a questionnaire study such as this is difficult if not impossible. There is a chance that students in good academic standing may be using some of the skills taught. However, from the reaction of the group trained we may say that they found some of the taught methods helpful. We may also posit that they had certain common problems.

Conclusions

Adults who receive training in developmental reading find skimming the most valuable of the skills taught. Once learned, the majority use these skills, whether they are in school or working.

Methods of organizing notes are considered the second most important skill, are used by the majority of individuals trained whether enrolled in school or working. Planned reviews are considered quite important, are used almost universally if taught. The SQ3R study method is considered important, but used less than the above skills. Machine work is thought beneficial by most of the trainees. One third of the trained group wanted more work of this type. Emotional states are considered a prime factor in causing exam failure. A preponderant number of advanced students with academic problems experience difficulty in expressing themselves in exams.

Pre-College Training on College Campuses

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Faced with the accomplished fact of considerable pre-college training currently being offered by colleges and universities, it seems advisable at this point to examine the activity presently proceeding and attempt to order one's thinking on the procedures and rationale which characterize this phase of reading and study activity. Consideration of such programs has been given attention in the literature previously but largely as reporting only. The purpose of this article is to present a rationale for activity of this type. In so doing, we will suggest some of the procedures in these courses.

The program described below is the one to be conducted at Western Reserve University in Cleveland, Ohio, during the summer months. It is fairly representative of many of those being conducted on many college campuses. So many variations are to be found that it would be necessary to examine each program individually if one wished to be thoroughly informed as to the range and nature of this activity. However, the following description will serve as a general but fairly representative model.

A Description of a Pre-College Program

Sixty high school graduates and high school seniors meet five days a week for four weeks during the summer months in sessions designed to improve their approach to college study. The meetings are three and a quarter hours in length, from 8:45 a.m. to noon. There are two such sessions, one during June and July, a second during July and August.

Recruiting for the classes is done through circulation of a publicity folder to area high schools. Preliminary testing conducted during May includes tests of academic aptitude, reading and writing. The purpose of the testing is both for screening and as a basis for assigning to sections later. We have an understanding (not too generally known, we hope) that no matter how low the scores on the entering battery, if a student has been accepted at an accredited college, we will accept him in our program.

The sixty students are subdivided (reading skill and academic aptitude are the determining factors for the grouping) into three groups with the result that we actually have small group instruction. The course of study, in which all participate, consists of reading, writing, and how to study. (Much variation in this particular exists among the programs being offered nationally. Some programs offer a considerably wider range of courses. Last year we altered this routine somewhat by having the entire group meet for one period, at which time some phase of work which could be presented by the lecture method was given as a lecture.

Our purpose is to improve specific skills and to develop attitudes toward college life which will aid the incoming freshman in meeting the demands of independent study. We attempt to create an atmosphere as much like that of a college classroom as possible. Within the limitations of the situation we have been mildly successful in achieving our goals. Even more, we strive to develop maximum ego-involvement by each enrollee, with emphasis on a realistic acceptance of strengths and weaknesses as they develop. Each student is interviewed by a staff member early in the course and every effort is made to involve the student in maximum cooperative effort. Post-testing and progress reports to the students are part of the evaluation.

A Rationale for Pre-College Training

The concern of this paper is to consider why this activity is going on and how it can be justified. Is this more "sub-college" teaching? Should such activity be relegated to the high schools?

The most obvious and pragmatic reason is to avoid drop-outs and failures. These are wasteful experiences, costly to both student and college. But as long as we operate our schools and colleges on the assumption that all are educable at whatever level each decides for himself, then we are more or less obligated to implement the assumption with whatever "in-service training" we deem necessary. Campuses are bursting at the seams, not because we have rapidly developed a nation of scholars but for reasons too numerous and too extraneous to our purpose to go into at this point in this paper. Since this is the situation and since we are faced with students who are going to need help if they are not to fail, we have devised the kind of help that puts the weight of responsibility where it belongs, on the student who has the lack. The unique fact about these programs is that they are voluntary, that the students pay for them, and that they are conducted during what is normally vacation time for the student. Therefore, this is entirely his responsibility.

I have said that these are students who feel the need of acquiring skills they lack and I would like to indicate that much has been written about the lack of certain basic skills which the incoming freshman feels. Very briefly these omissions in training appear to center around writing skills and around the ability to do independent study. While some of the studies report other needs (such as inadequate mathematical skill and lack of basic scientific knowledge), these two appear to dominate, these and, of course, the need to read better. This last is so generally felt now in the United States that it need not be singled out for special mention here.

A corollary to the first reason, that we can by "pre-training" in certain skills avoid drop-outs, is that we educators see ourselves as father-images to the incoming freshman and, as any helpful parent, we want the most for the many and the best for the best. If pre-training is going to make the aspiring student more successful, if it is going to support the maturing process, then we will organize a program to meet this need. Hence, we offer additional training to students who, in no danger of flunking out, are seeking to insure themselves of maximum achievement. This is, I submit, praise-worthy and reasonable. This attitude may stem from the pressures presently operating on the college scene. It may also come from an awareness that advanced study is a more serious kind of activity than the looser, less self-motivated study of high school days. It may well indicate that these youth are beginning to be aware of their obligations as students. Whatever the reasons, there can be no doubt that they enter the programs with serious intent and that for the most part, they expend a great deal of effort on this purely extraneous—extraneous, that is, to the official credit system — activity at a time when they could be vacationing.

But, worthy as these goals may be, they are not, I speculate, the raison d'etre for all the effort that underlies pre-college training. Granted we want the incoming freshman to be as knowledgable as possible about flexibility of approach to printed matter, as effective in writing reports as training can make him, as conversant with mathematical manipulation as experience can render him, I suggest that what we are basically concerned with is developing a self-motivated, independent attitude toward study and learning. I suggest that "growth-motivated behavior", to borrow from Maslow, is more to be desired in the college student than "deficiency-motivated behavior", just as it is in any other member of the human race. To learn because it furthers one's purposes and gratifies one's personal needs means to approach college study with purpose and direction. This is growth-motivated and it is in contrast to much of the behavior characteristic of the would-be college student.

It has been our experience that we are presently encountering students in these preparation-for-college courses who have hidden their basic lack of skill and of purpose behind a facade of indifference. Either because of the learning climate in some secondary schools, or the immaturity of the individual student, or the confused educational goals of the society in which they find themselves, many preparation-for-college students have not, before enrolling in these courses, looked at their deficiencies or examined their objectives frankly and realistically. To do this becomes a salubrious experience. To succeed in getting these prospective college students to do it is, I submit, the ultimate goal of preparation-for-college training and is the key reason for the whole activity.

In conclusion I suggest that integration of the goals of independent study, of a lively curiosity about intellectual activity into a pre-college skills training program, is a *sine qua non* if such programs are to claim the effort and time of educators and take up space on college campuses. Without this we are simply putting our fingers in the hole in the dike.

Teaching Incoming Freshmen to Read and Learn

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Incoming college freshmen want to read more and to learn more than they have ever read or learned before, and they welcome opportunities to develop the higher-level reading skills that they need for meeting the new challenge at college. They want to develop these skills, not to increase their leisure time, but to participate fully in the "bookish" collegiate world.

The Old Order Changeth . . .

An instructor of a section of incoming freshmen holds a key position as his students enter his "bookish" world and desire to be challenged intellectually. Aware of the reading characteristics of incoming freshmen, he may wish to use classroom practices that promote his students' reading development. Several possibilities are suggested below.

Encouraging students to be critical about how they read. Incoming college students can be induced to aspire to high goals of learning in their new environment by the instructor who shows an interest in *how* they are learning his subject, as well as *what* they are learning. How do students who are beginning a new language attack their assignments? How do students who have been asked to read an entire book for a single assignment, as in an English or a social science course, plan to read it? Probably the most difficult book from which some freshmen learn is a laboratory manual of a science course — how are students utilizing this manual as a preparation for performing experiments? In a mathematics course, are the students thinking critically about how effectively they are studying from their textbook? The instructor who is thus curious about his students' self-set educational goals in his course can occasionally inject into class activities formal inquiries about how the students are studying from the books of his course. He may wish to go a step further by proposing particular study practices. These suggestions are best presented as experimental and amenable to adaptation according to each student's characteristics.

Encouraging the first read, then study procedure. Almost all reading specialists recommend that a careful study of matter read for subsequent recall should be preceded by a grasp of an "overview." This recommendation has been applied to all school subjects at all educational levels. To quote three descriptions of these two different readings, Gertrude Hildreth has written to teachers of the lower levels as follows: "The pupil is advised to try to get the main ideas from a first reading through, then to reread to make certain of details needed to answer questions and to solve problems." Similarly, in *Fundamentals of Mathematics,* M. Richardson advises: "This book [i.e. college mathematics textbook] should not be used merely as a collection of homework exercises; it should be read. *You should read each section at least twice: once to get the general idea, and then carefully, checking on each detail. A third reading is advisable."* Likewise, a pamphlet on *How to Study Physics* contains the following recommendation: "When you study an assignment [in physics] first go over it rapidly, taking in only the high spots, to find out what it is about. Then go over it more carefully." Finally, the poetry editor of *The Nation* has suggested that difficult authors would be more "available" to the general reader if approached properly, as follows: "For most works, a first, largely uncritical but alert reading is helpful simply to get an overall sense of the set, the feel, of the whole."

The *first read, then study* method of comprehending college-level readings is, of course, subject to modifications to suit the special characteristics of the course and of the practices of a particular teacher. For example, one English teacher may propose that the first reading of a literary work be for "meaning," and that the second be for "appreciation"; another may recommend that the students first read to "enjoy" the work, and then study to "judge" the work, in the latter case consciously identifying and judging the author's art. While reading a mathematics, science, or other textbook that requires memorizing, students may be advised: don't learn before you understand; first read the chapter to understand it. A foreign-language teacher may wish to adapt the *first read, then study* comprehension method to translations, as follows: Ideally, your first goal is to read the entire selection to grasp its general meaning. While attempting to do so, guess freely at the meaning of difficult words and consult the dictionary only when absolutely necessary to verify a guess. If such an attack is not possible, read only a page or a paragraph in this manner. If you are unable to read even one paragraph without needing to *translate* it first, make a particular effort to guess at the meaning of an entire sentence before you look up all the unfamiliar words.

An instructor may find it interesting to experiment with the above technique on his own readings, in particular of answers to examinations. Before he takes his red ballpoint in hand, a quick reading of a paper for a rough evaluation of the work may help him considerably. Obviously this technique is most useful to the instructor who, like an English teacher, in addition to marginal notations writes a brief summary of his reactions at the end of a student's essay. Yet a mathematics or science teacher reading nonverbal answers may also benefit since whatever markings he makes alongside the first answer, for example, are likely to be influenced if he knows whether the entire test paper is good, fair, or poor.

Arousing interest in assignments before students read them. Obviously, the better that students understand their home readings in preparation for class discussion, the more the instructor can rise above being simply a classroom expositor of homework. An instructor of a lower-freshman group can readily experiment to observe how his students are better prepared for classroom lessons when he has aroused their interest in forthcoming homework, as opposed to his simply saying, "For next time, read pages 198-289."

An instructor can induce a class to read an assignment with aroused intellectual curiosity in different ways, according to his particular teaching preferences. Concerning an assignment, one instructor may seek to quicken interest by making a few generalizations about its significance, whereas another may choose the more direct method of proposing several questions for consideration when the assignment is discussed in class; a third instructor may choose to create controversy by stating two sides of a question related to the assignment, a fourth instructor may prefer simply to rouse the students to extend themselves on admittedly difficult home work to come, while a fifth may ask his students to open their books to certain passages of a forthcoming assignment and then direct their attention to difficult ideas.

Instructors will differ also as to how often they deliberately make lessons challenging before students read them. An instructor who is especially mindful of things to come in a course syllabus, tends to make his students anticipate future readings anyway because he frequently refers to them. Likewise, a sense of expectation about readings is naturally induced among students of a teacher preferring to begin in "medias res" (e.g. first read Chaucer and then go back to *Beowulf,* or study the Industrial Revolution before taking up the Mercantile Revolution, or study a modern scientific principle as a basis for later examination of the old theory that it displaced.) For the teacher himself, experimentation can increase his own interest in a lesson, especially if he can turn to his advantage the fact that he is teaching more than one section of the same course and therefore can deliberately vary his methods of stimulating interest in forthcoming assignments.

Taking up key ideas of a lesson before studying the lesson in detail. Of the several methods by which an instructor of entering freshmen can "go over" homework, one in particular encourages his new college students to read for *facts* and ideas, and not facts alone. This teaching practice is to discuss homework from facts alone. This teaching practice is to discuss homework from the general to the particular. The instructor calls for expressions of key ideas of the whole assigned lesson before asking students to discuss in detail any part of that lesson. Such a procedure can be especially effective in a foreign-language classroom, if students tend to translate sentences without relating them to larger contexts of meaning; in a mathematics classroom, if students copy homework exercises on the board and then discuss them as ends in themselves rather than as applications of principles; and during lessons on literature, if students try to interpret a detail of characterization or theme without reference to the entire characterization or theme; in a social science classroom, if students have just finished a whole book but fail to grasp its over-all theme and significance and have not even read the preface of the book to ascertain the author's or editor's purpose; and in a science classroom, if students recite laws and facts as mere subject matter of a book and not as interpretations of the actual world about them.

Encouraging students to think creatively during reading. Instructors of incoming freshmen are well aware that these new students are in awe of their college teachers—at least during the first week of the term. This attitude they often extend toward their college books. They read passively, often in the belief that everything in the world is pat for them, that the physical sciences, natural sciences, and social sciences have discovered all the answers for them, and that literary tastes and judgments have irrevocably been determined for them. Instructors in social science and in English and advanced foreign language courses can encourage their students to read critically by employing during class discussions what reading-test specialists call "critical levels of comprehension." These are the second and third of the following series: (1) reproducing the author's ideas ("What does the author say about—?"), (2) drawing inferences and coming to conclusions not expressed by the author ("What attitude does the author seem to take toward—?") and (3) evaluating the author's ideas ("What is your opinion of—?").

In science and mathematics courses, instructors can combat rote learning by inducing students to express theories, principles, and formulas in words that are intelligible to the non-specialist. Critical thinking is demanded of the student when he seeks to verbalize into non-technical language definitions like "tan equals opposite over adjacent" and "FMA"; explanation of processes like the operation of a turbine and reproduction among plants; and explication of concepts like a quadratic equation, far-sightedness and near-sightedness, the gestalt theory of learning, and cerebral tumors.

. . . Yielding Place to the New

When an instructor of lower freshmen guided his students to develop their reading and learning skills, he is triggering the students' present growth in a new intellectual environment, not repairing old deficiencies due to past neglect. The growth is a mounting of information—and more. It is an increasing awareness about how to use one's mind. These two forms of growth are mutually supporting. The better one's reading and learning skills, the more knowledge one can absorb and store in one's mind. And the more knowledge one has at his command, the better one can comprehend and learn what one reads. As the "old order" yields to the "new" in each class section of incoming freshmen, the instructor can both nourish the students' minds with reading and learning skills that increase their powers of gaining knowledge.

The Hidden Consensus on Vocabulary Development

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There seem to be a great number of "systems" for vocabulary development. Yet, strangely enough, there is little disagreement among their authors. What appears to be a difference of opinion on the subject ordinarily proves, upon close examination, to be either a matter of one author's never having thought of the other's suggestion or a matter of the apparent antagonists actually talking about two different problems. Rarely do two clearly meet head-on, one saying the student *should* do thus-and-so and the other saying he *should not.*

Purpose

It will be the purpose of the present paper to report the results of examining a number of vocabulary development workbooks and chapters, delineating their areas of agreement and identifying their points of difference, and to derive a position or viewpoint regarding the most effective procedure for increasing reading. Quite frankly, this will be an exercise in rationalization. The position assumed in this paper was outlined in an earlier discussion. (10) However, a more charitable description of the present effort would be as a re-tracing of the reasoning which led to this position several years ago and a demonstration of the fact that it is as valid in the light of recent materials as it was before they were written.

Basic Assumptions

One must be careful to avoid the appearance of merely tying on a blindfold and leaping into the free-for-all described in the opening paragraph above. It seems best to begin with a consideration of the causes of the confusion. This is not so much a matter of individual blindfolds on the participants as one of the presence of certain pervasive smoke screens. These may be removed one at a time.

First, we are talking about reading vocabulary. Others may discuss speaking vocabulary and writing vocabulary and hearing vocabulary, but, in light of the setting of this symposium, we

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shall confine ourselves to the consideration of reading vocabulary. Furthermore, we are not talking about sight vocabulary. We are only concerned with the problem whether a word encountered in reading arouses the correst meaning response.

Second, we are addressing the problem of determining or acquiring the meanings of new words, not with that of retaining or memorizing the meanings once you have them. Using new words in sentences, keeping them in notebooks, and making up flash-cards are excellent techniques for retaining meanings you have learned. But this paper is primarily about learning the meanings in the first place. (Triggs (20) also made this distinction in her discussion of the problem. Few writers do.)

Third, we are assuming, in view of the evidence and expert opinion summarized elsewhere (2), that learning the meanings of words in real context is superior to learning the meanings of words in isolation or in bits of context contrived for the occasion.

At any rate, most authors of materials which "teach" a given number (say 300 or 500) of words apparently realize that they have added but a drop to the bucket and close with suggestions for continued improvement. Almost perforce, the suggestions deal with the proper reaction to strange words encountered in reading.

The Problem

In view of the last three paragraphs, it is plain that our problem is reduced to two questions:

1. What materials should we use for vocabulary development.
2. What procedure should be applied to that material?

The questions will be discussed in that order.

Materials for Vocabulary Development

None of the discussions examined for inclusion in this paper offered a suggestion for the selection of material. However, the appropriate procedure is fairly obvious. One must make his selection, in most cases, on the basis of two factors:

1. The subject matter desired; and
2. The number of strange words (to the student) it contains.

The subject matter, of course, should be that in which one would improve his vocabulary. If his general vocabulary is to be improved, the material should be of a general nature. If he would improve his general vocabulary in a foreign language, the material should be of a general nature and in that language. Improving vocabulary in a technical field calls for material from that field. As to the number of strange words the material should contain, experience suggests about two or three new words per hundred running words. With less than that, one acquires fewer new words per hour. With much more than that, comprehension—and the entire system—breaks down. (10)

Procedure for Vocabulary Development

Once the material is selected, the procedure, first of all, must be to read the material for meaning. There seems to be no argument here. Secondly, the procedure becomes a matter of reacting to unfamiliar words. Only five possible relevant ways of doing so suggest themselves:

1. Skip it—that is, read right on past it.
2. Guess at its meaning from the context.
3. Guess at its meaning from its roots, prefixes, and/or suffixes.
4. Pronounce it.
5. Ask someone about it—that is, question a living person or go to a glossary, dictionary, encyclopedia, etc. In order to facilitate discussion and confine our remarks to the subject of independent study, let us refer to this as "looking it up." It amounts to being told the word's meaning.

Thus, our problem, once material has beeen selected, becomes:

1. Which one of the five reactions should be employed with unfamiliar words?
2. Under what circumstances?
3. In what order?

There remains, of course, the possibility (and, as it happens, the probability) of employing two or more of the five possible reactions simultaneously.

Recommendations of Various Authors

Some authors of workbooks and chapters on vocabulary development recommend that the person who would improve himself employ just *one* of the five possibilities. Weber's parting suggestion in his *Reading and Vocabulary Development* is that the student "look up" unfamiliar words that he encounters (21). And in *How to Read Better and Faster* Norman Lewis recommends that the reader look at the context and then "think" (11). We have not counted the latter as a separate reaction.

Some authors would have the reader use two of the five possible reactions to unfamiliar words. In 1949 Carter and McGinnis suggested first pronouncing the unfamiliar word and then, if necessary, looking it up (4). Cuomo, in his recent excellent book on this topic (7), urged the student to study the context first and then, if he had to, resort to the dictionary. "Use the dictionary", he counseled, "with restraint." He called this approach the "natural way." But, then, Norman Lewis called his suggestion the same thing. Smith made the same recommendation as Cuomo, and made it earlier, in the chapter on vocabulary in *Read Faster and Get More from Your Reading* (16), as did William Baker in one of his articles in *Reading Skills* (1). And Gilbert, in her *Power and Speed in Reading,* would have one first analyze the words into roots, prefixes and suffixes and then use the dictionary if he had to (8).

An imposing group of authorities direct the reader bent on building his vocabulary to utilize (1) context, (2) analysis into roots, prefixes and suffixes, and (3) the dictionary. Ruth Strang, both in her essay on vocabulary development in *Study Type of Reading Exercises* (18) and in the similar essay in her college level version of that booklet (19), Paul Witty in *How to Become a Better Reader* (22), Spache and Berg in their *The Art of Efficient Reading* (17), and Brown, in her new and thorough *Learning Words in Context* (3), all make that recommendation.

Three authors were found to add phonetic analysis to the three attacks mentioned above. The earliest was Triggs, in her classic *Improve your Reading* of 1942 (20). Witty did the same in his *How to Improve your Reading* (23), although in parts of his discussion (23:188) he seemed inclined to forget it. Carter and McGinnis, in *Effective Reading for College Students in* 1957 (5), not only made that addition but also made another significant contribution; they explicitly recommended (5:157) that the reader make a regular practice of

(1) pronouncing the word, (2) looking for familiar roots, prefixes and suffixes, (3) examining the context, and then (4) resorting to the dictionary. Thus, clearly spelling out a procedure met a need of several years' standing.

Cosper and Griffin, in their *Toward Better Reading Skill* (6), not only recommended the four attacks just discussed but also mention the fifth, "skipping" the word, as a possible approach to an unfamiliar term. However, it is not given as a recommendation, and we consider this a serious mistake, as we shall soon explain.

Conclusions and a Statement of Position

Our conclusions from examination of the materials mentioned may most clearly be stated as a series of points:

1. All of the five possible reactions to unfamiliar words should be mastered and used by anyone who wishes to learn to read. Use of context, use of roots and affixes, and use of the dictionary would seem to need no justification beyond that given in the workbooks and chapters mentioned. "Skip it" should be discussed.

Schick and Flick recommended skipping unfamiliar words in one's reading until after the reading is completed, looking them up later (14). This would seem at least an undesirable if not an impossible approach to comprehension of the material.

Skipping a word completely—not as a means of examining its context, but as a final disposition of the word—is, as we have said, recognized as a common approach of poor or careless readers. However, *systematic* skipping is not a recognized procedure, and we feel that it should, because of the tremendous economy of time it affords, occupy an important place in any system. This presupposes a workable *basis* for skipping. If one proposes to skip unimportant terms, he must have a practical means of identifying them. The logical basis would appear to be something like: *If you can understand this paragraph without the word, skip it.* This should eliminate many words and yet make comprehension of the material possible. Important words overlooked under this approach would, presumably, occur again, perhaps in a more crucial position. A word which occurred frequently but never in a crucial position would not be extremely important but would probably soon catch the reader's attention and arouse his curiosity enough so that he would determine the meaning.

It should probably be noted that the above approach to deciding which words to skip is primarily applicable to expository material. In narrative material, it would be more appropriate to recognize the type of comprehension most important in narrative material by some such instruction as: *If you can visualize the scene, event, or person without the word, skip it.* This can be added as an advanced refinement when training students. The rule then becomes "Check unfamiliar words and skip them as long as you can understand every paragraph or visualize every scene." Checking the word is to facilitate the process of finding it again if comprehension or visualization are not possible without it.

Obviously, "check it and skip it" must be the first step in one's systematic approach to new words if it is to save as much time as possible. Likewise, since it fits in so smoothly, looking at the context for an explanation of the word if its meaning is necessary is incorporated in this recommendation, and, thus, two of the five reactions are implied by the first step. The other steps of our recommended procedure (10) are also aligned in the order which seems most economical of time and at the same time, most similar to the unconscious practice of most skillful readers. The resulting recommendation then becomes:

a. Check it and skip it.

b. Break it up (into roots and affixes).

c. Sound it out.

d. Look it up.

One uses only as many of these as he needs in order to understand every paragraph or visualize every scene.

2. The person who would learn to read should not only master of all five and use them in the prescribed order. He should learn to do so in the primary grades. These are the steps in attacking words which are not in one's sight vocabulary. The primary child who masters them and forms the habit of using them on words which are not in his sight vocabulary will be efficient and independent in word identification (9) The steps are being taught in the modern primary schools. All that re-

mains is to ingrain the procedure described in the order mentioned in children's reading behavior. Then this must be kept alive through the upper elementary and secondary school years, long after word identification has become a very minor problem and the procedure has become associated with words new to one's vocabulary. The child will never know when he moves from the practice of using these steps to identify non-sight words to the practice of using them to determine the *meanings* of new words. When he is faced with an unfamiliar word he cannot know whether he knows its auditory form or not. He can only know he should apply the steps as recommended. Hence his meaning vocabulary will grow automatically and continuously from the time he begins to encounter new words.

3. If the child ever studies a foreign language, he will find that exactly the same procedure for approaching new words will be his most productive approach there. The psychological reasons are exactly the same.

4. The child—or anyone else—should not only use this when he is deliberately developing his vocabulary but also use it in all reading. The person reading for any purpose whatever encounters unfamiliar words at least occasionally. The recommended procedure is the easiest and most effective means of handling any words in that reading if he wants comprehension at all. In the light of this it seems most evident that the schools should insist that every pupil or student use it every time he reads.

5. The child for whom these steps, properly applied, do not yield the meaning needed clearly lacks the experimental background necessary in order to understand the word. This has implications both for the child and for the teacher. Every teacher should learn to recognize this need and to help the child to satisfy it. Sooner or later—probably in the fifth grade—the child should learn to recognize this need in himself and, under such circumstances, to seek the experience necessary in order to understand the word, if it is of importance to him.

Thus we conclude that all of the relevant reactions to unfamiliar words can be built into a highly efficient procedure which, should be taught early, ingrained deeply, and used throughout the student's reading life in order to achieve maximum comprehension speed and greatest development of his meaning vocabulary.

References

1. Baker, William D., *Reading Skills.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1953.
2. Bond, Guy, and Miles A. Tinker. *Reading Difficulties, Their Diagnosis and Correction.* New York: Appleton-Century-Crofts, 1957.
3. Brown, Marion Marsh, *Learning Words in Context.* San Francisco: Chandler Publishing Co., 1961.
4. Carter, Homer J., and Dorothy J. McGinnis, *Reading Manual and Workbook.* New York: Prentice-Hall, Inc., 1949.
5. Carter, Homer J., and Dorothy J. McGinnis, *Effective Reading for College Students.* New York: The Dryden Press, 1957.
6. Cosper, Russell, and E .Glenn Griffith, *Toward Better Reading Skill.* New York: Appleton-Century-Crofts, Inc., 1959.
7. Cuomo, George, *Becoming a Better Reader.* New York: Rhinehart and Co., 1960.
8. Gilbert, Doris, *Power and Speed in Reading.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1956.
9. Gray, William S., *On Their Own in Reading* (Revised Ed.). Chicago: Scott, Foresman and Co., 1960.
10. Johnson, Harry W., "A Single Procedure for the Development of Meaning Vocabulary, Sight Vocabulary, or Foreign Vocabulary," *Journal of Developmental Reading*, 4:174-183, Spring, 1961.
11. Lewis, Norman, *How to Read Better and Faster* (Revised Edition). New York: Thomas Y. Crowell Co., 1951.
12. McDonald, Arthur S., Stanford E. Taylor, and Helen Frackenpohl. *Word Clues.* Huntington, New York: Educational Developmental Laboratories, 1961.
13. Rodgers, Paul, *A Word to The Wise.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1961.
14. Schick, George B., and Helen Frick, *Handbook for Instructors in Developmental Reading.* Chicago: Psychotechnics, Inc., 1958.
15. Sherbourne, Julia Florence, *Toward Reading Comprehension.* Boston: D. C. Heath and Co., 1958.
16. Smith, Nila B., *Read Faster: And Get More From Your Reading.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1958.
17. Spache, George D., and Paul C. Berg, *The Art of Efficient Reading.* New York: The Macmillan Co., 1955.
18. Strang, Ruth, *Study Type of Reading Exercises.* New York: Bureau of Publications, Teachers College, Columbia University, 1956.
19. Strang, Ruth, *Study Type of Reading Exercises: College Level.* New York: Bureau of Publications, Teachers College, Columbia University, 1951.
20. Triggs, Frances Oralind, *Improve Your Reading.* Minneapolis, Minn.; University of Minnesota Press, 1942.
21. Weber, Christian Oliver, *Reading and Vocabulary Development.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1956.
22. Witty, Paul, *How to Become a Better Reader.* Chicago: Science Research Associates, Inc., 1953.
23. Witty, Paul, *How to Improve Your Reading.* Chicago: Science Research Associates, Inc., 1956.

Research and Development in Vocabulary-Improvement Courses

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In their presentations, my colleagues on this panel have set forth specifics for the improvement of teaching, for the development of greater vocabulary among members of academic or adult groups.

A third approach to the problem of instruction in growth of vocabulary is to survey some of the most significant and representative articles, research reports, and textbooks which have been produced within the past decade and to consider possibilities for further research and practical applications of these principles in the predictable future.

Before proceeding to considerations of what has been done and what may be done in the way of practice and research upon which improved vocabulary growth can be fostered, a look at language itself and specifically the English language, its qualities and richness of heritage, may not be amiss. For to bring about true understanding of the use of words, our tools of expression in this complex and hectic world society, it is necessary to appreciate the astonishing wealth with which preceding generations of writers and speakers have endowed English-speaking peoples. On every level of instruction, from primary grades to advanced adult training, the teacher has an unmistakable obligation to impart, simply but with conviction, some realization of the tremendous power of English words to express not only direct and clear statements but also shades and colorings of meanings, depth of significance, and implications or suggestions beyong the prosaic and straightforward declarative. Not that third or twelfth graders or college students or adults need be burdened with extensive lectures on the technical or abstruse aspects of the history of the language; rather, they may be stimulated to regard the words which they meet in reading or which they employ in speaking and writing as highly useful utensils which have been developed and adapted and refined by many generations of English-speaking persons. By this means, a creative and active interest in words themselves is developed; without this interest the acquisition of greater word power tends to become sterile drudgery forced upon unwilling minds merely to satisfy some authoritarian's notion of what is necessary for a certain number of credits. The intimate relationship of an extensive vocabulary to the setting forth of complex and subtle ideas which are the outcome of deep thinking need not be dwelt upon here. But it must be emphasized that this interest in vocabulary is vital; it must be induced and nurtured intelligently if true learning is to come about. Moreover, it should follow without further argument that the instructor himself must have a strong and abiding interest in words and their ways if he is to impart real concern for vocabulary growth to his classes.

Now for a critical look at the body of published material on vocabulary improvement. In quantity, comparatively recent articles in professional journals on this subject run into the hundreds. Edgar Dale's two bibliographies of vocabulary studies total some 1500 items in the first volume (11) and more than 3000 items in the second. (13) By far the greatest number of these articles, however, are concerned with the primary and middle grades. Almost as many have to do with secondary school situations. As for college and adult circumstances, relatively few significant papers have appeared, indeed almost none specifically related to the improvement of vocabulary by adults. Nonetheless, quite a few of these reports and research publications have sufficient validity for college people and adults to warrant their consideration. Of the published materials which we may designate as significant in one phase or another, nearly all fall into one of five main categories.

Representative of the affix and root study of words to improve vocabulary control is James S. Brown's "Vocabulary: Key to Communication."(10) Selecting fourteen "master" words which exemplify twenty prefixes and fourteen root elements, Brown adopts a four-step approach illustrated by his forty item diagnostic test which measures performance at the following four levels: memorization, identification, application, and generalization. Brown's analysis of the utility and extensiveness of this method for improving word knowledge is sufficiently detailed to require no further illustration of this first category, although several other articles might be cited.

A second category, for which a great many articles might be enumerated, consists of a word-list approach to the improvement of readers' vocabularies. George C. Kyte's "A Core Vocabulary in the Language Arts"(27) is somewhat typical of this grouping in that the attempt is made to select a complete list of words, mastery of which is essential to success in various instructional programs or areas of the academic curriculum. Popular and useful as any word-list scheme may prove, it has its limitations. It may readily be granted that a consistent drilling on any group of words for any reasonable length of time will produce satisfying results on a final test for knowledge of these particular words. Yet the conscientious teacher will feel strongly forced to go beyond any specific list for word understanding, or feel compelled to admit that this approach is limited in scope and somewhat sterile in its application to the problems of the whole growth of vocabulary for most students.

A third group of publications on vocabulary improvement comprises the exposition of various schemes, devices, games, or specific practices designed to create curiosity and interest in words. Of this category, M. Z. Wiersema's "Ceiling Unlimited"(52) may be thought of as a representative, but there are many suggestions of this nature in print, and most of them can be quite useful to the teacher who will apply them enthusiastically and intelligently in word study.

Another category of articles is that concerned with the significance of context in word acquisition. Every thinking teacher of vocabulary improvement knows full well that the bulk of every person's vocabulary is achieved by acquaintance with particular words in various contexts and circumstances. But this approach to growth in vocabulary usually requires extensive use of students' time and concerns long-term rather than immediately demonstrable results. Of this group, not at all large in number but surely important to any consideration of vocabulary improvement, two papers may be cited as representative: James D. Young's "An Experimental Comparison of Vocabulary Growth by Means of Oral Reading, Silent Reading, and Listening,"(54) and "Teaching College Freshmen to Read"(34) by Arthur S. McDonald and Walter J. Pauk. Within this very year have appeared two college textbooks which seek to develop students' vocabulary clues; they are Paul C. Rogers' *A Word to the Wise* (38) and DeVitis-Warner's *Words in Context* (15). The latter book gives strong emphasis to contextual acquisition of words, probably more so than most of the excellent workbooks now in print.

In a classification of its own is the first in a series of programmed workbooks called *World Clues* (44) by Arthur McDonald, Stanford Taylor, and the staff of Educational Developmental Laboratories. Utilizing "teaching machine" techniques, the editors have programmed the thirty lessons in this first book so as to present contextual clues, information on derivation, and multiple-choice quizzes for each new word which the student comes upon as he reads the text of a story or essay. Also, there are thirty word-meaning exercises for additional practice on all the words dealt with in each lesson. Since this is, it would seem, almost a pioneer venture into full-scale use of programmed learning techniques as applied to vocabulary development, reports on its use in various circumstances will be most interesting and suggestive.

A fifth category of publications on vocabulary teaching considers the problem of testing. Although not notably large in number, these studies reflect growing awareness that many tests now in use fail to recognize the existence of multiple meanings for English words. But if vocabulary testing instruments are to have any utility beyond a bare score of 98 or 72 or 46, they must demonstrate to the student that thousands of the most used words in the language have more than a single meaning. Were there opportunity, detailed consideration of each of the following reports would be highly provocative. But I shall have to content myself with mere mention of these four: Frederic C. Osenburg's "A 'Qualitative' Vocabulary Test";(36) "Vocabulary Tests and Depth of Meaning"(17) by E. W. Dolch and Don Leeds; Mildred Berwick's "The Semantic Method for Testing Vocabulary"(6); and "The Synonym Vocabulary Test"(29) by William M. Lepley and Martin L. Zeigler.

Finally, attention should be called to at least two articles which suggestively point to future needs in research and development of improved techniques, instruments, and practices in the teaching of vocabulary growth. E. W. Dolch in "Depth of Meaning" (16) emphasizes that mere quantity in the acquisition of vocabulary is not enough; full understanding of words must never be neglected. In his "Developing Vocabulary: Another Look at the Problem," (14) Lee C. Deighton stresses need for recognition that there are many meanings for a large number of words in the English language, that contextual clues must not be overlooked, that word-analysis gives additional hints for word-meanings, and that meaning—and vocabulary-growth come from continuing experience.

Difficult as the task may be to conduct courses or units of intensive work on vocabulary improvement, the teacher may be genuinely encouraged by the great and popular interest in growth of word power. Newspapers and some of the most widely circulated of national magazines have regular features to enable readers to enlarge their word-stock; soft-cover publications on vocabulary growth sell by tens of thousands. Despite all this continuing interest on the part of the general public, research reports and articles on techniques of adult vocabulary improvement are almost nonexistent. Surely Johnson O'Connor's "Vocabulary and Success,"(35) first published in the *Atlantic Monthly* and frequently reprinted, is not to be taken as the final word on matters of training adults to enlarge their vocabularies.

Another area of public interest is shown in recent news and magazine articles (47; 51) which assert that Russian children in the grades are exposed to far more rich and extensive vocabularies than are North American pupils. Extravagant as some of these allegations may seem, the fact remains that the most widely used textbooks in American schools present new words at an alarmingly decelerated rate. In fact, it would seem that many of our textbooks are so constructed that the words used represent only a minimal standard for vocabulary growth, that these words are those which the average pupil should acquire. But what of all those pupils on the upper half of the academic scale? Are they to be deprived of stimulation to develop their own vocabularies beyond the most basic of needs?

In view of this heightening interest, though not necessarily *enlightened* public awareness, opportunities to study and practice new techniques, to develop instructional aids with wider scope seem to be great. But in the devising of new and improved testing instruments, of workbooks and exercises and teaching devices, of better classroom methods and study guides—all of which must be achieved in the predictable future, certain pitfalls must be avoided. Chief among these are the use of the single definition pattern for teaching and testing, of far too limited word-lists and core vocabularies, of over-emphasis on word derivation or even contextual learning of new terms. For vocabulary growth develops on a very broad front for everyone—to limit training to any one area is seriously to impair the total growth of word power on the part of the student.

Selected List of References on Vocabulary Improvement *

1. Altus, W. D., "The Relationship Between Vocabulary and Literacy When Intelligence Is Held Constant," *Journal of Social Psychology*, 31:299-301, May, 1950.
2. Anderson, M. A. and R. C. Staiger, "Language Arts Research, 1956," *Elementary English*, 34:246, April, 1957.
3. Aylesworth, T. G., "Teaching Vocabulary in Biology," *Science Teacher*, 26:479-83, November, 1959.
4. Baker, J. B. J., "Mastery of Vocabulary in History," *Journal of Educational Research*, 50:589-95, April, 1957.
5. Baxter, F. B., "Vocabulary Development Through the Reading of the Daily Newspaper," *English Journal*, 40:570-1, December, 1951.
6. Berwick, M., "Semantic Method for Testing Vocabulary," *Journal of Experimental Education*, 28:123-41, December, 1959.
7. Black, E. L., "Eight Types of Mistakes in Comprehension," *English*, 11:10-14, Spring, 1956.
8. Blanchard, B. E., "Improving Rate, Vocabulary, and Comprehension in Reading by the Inversion Technique," *Journal of Experimental Education*, 26: 43-49, September, 1957.
9. Borgatta, E. F. and R. J. Corsini, "Quick Word Test," *Journal of Educational Research*, 54:15-19, September, 1960.
10. Brown, J. I., "Vocabulary: Key to Communication," *Education*, 80:80-84, October, 1959.
11. Dale, Edgar, *Bibliography of Vocabulary Studies*, Bureau of Educational Research, Ohio State University, Columbus, 1949.
12. Dale, Edgar, "Problems of Vocabulary in Reading," *Educational Research Bulletin*, 35:111-23, May, 1956.
13. Dale, Edgar, and Donald Reichert, *Bibliography of Vocabulary Studies*, Bureau of Educational Research, Ohio State University, Columbus, 1957.
14. Deighton, L. C., "Developing Vocabulary: Another Look at the Problem," *English Journal*, 49:82-88, February, 1960.
15. DeVitis, A. A., and J. R. Warner, *Words in Context: A Vocabulary Builder*, Appleton-Century-Crofts, New York, 1961.
16. Dolch, E. W., "Depth of Meaning," *Education*, 49:562-66, May, 1949.
17. Dolch, E. W., and Don Leeds, "Vocabulary Tests and Depth of Meaning," *Journal of Educational Research*, 47:181-89, November, 1953.
18. Edwards, T. J., "Context Clues and Word Mastery in the Junior College," *Junior College Journal*, 29:292-98, March, 1959.
19. Eicholz, G., and R. Barbe, "Experiment in Vocabulary Development," *Educational Research Bulletin*, 40:1-7, January, 1961.
20. Funk, Wilfred, *Six Weeks to Words of Power*, New York, 1960.
21. Funk, Wilfred, and Norman Lewis, 30 *Days to a More Powerful Vocabulary*, New York, 1961.
22. Goodman, Roger B., and David Lewin, *New Ways to Greater Word Power*, New York, 1960.
23. Gulick, S. L., and D. Holmes, "Vocabulary Tool for the English Teacher," *College English*, 19:214-17, February, 1958.
24. Heinberg, P., "Experimental Investigation of Measuring Diction," *Journal of Educational Research*, 52:303-6, April, 1959.
25. Hunt, Jacob Tate, "The Relation Among Vocabulary, Structural Analysis, and Reading," *Journal of Educational Psychology*, 44:193-20, April, 1953.
26. Johnson, Harry W., "A Single Procedure for the Development of Meaning Vocabulary, Sight Vocabulary, or Foreign Vocabulary," *Journal of Developmental Reading*, 4:174-83, Spring, 1961.
27. Kyte, George C., "A Core Vocabulary in the Language Arts," *Phi Delta Kappan*, 34:231-34, March, 1953.
28. Lepley, William M., "The Rationale, Construction, and Preliminary Try-Outs of the Synonym Vocabulary Test," *Journal of Psychology*, 39:215-25, January, 1955.

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29. Lepley, William M., and Martin L. Zeigler, "The Synonym Vocabulary Test: Standardization and Validation," *Journal of Psychology*, 41:419-25, April, 1959.
30. Levin, Janice, and Chalmers L. Stacey, "Awareness of Vocabulary Size: Its Relation to Class Standing and Sex Differences," *Journal of Educational Psychology*, 42:174-84, March, 1951.
31. Lewis, Norman, *Word Power Made Easy*. New York, 1961.
32. Malsbary, D. R., *et al.*, "Spelling, Vocabulary-Building, and Handwriting Library," *American Business Education*, 16:319-24, May, 1960.
33. Masek, R., "Vocabulary Testing in Remedial English," *Junior College Journal*, 28:7, September, 1957.
34. McDonald, A. S., and W. J. Pauk, "Teaching College Freshmen to Read," *Phi Delta Kappan*, 38:104-9, December, 1956.
35. O'Connor, Johnson, "Vocabulary and Success," Introduction to *English Vocabulary Builder*, Human Engineering Laboratory, Stevens Institute of Technology, Hoboken, New Jersey.
36. Osenburg, F. C., "Qualitative Vocabulary Test," *College English*, 18:91-94, November, 1956.
37. Phillips, M. V., "Methods to Improve Skill in the Use of a Geography Vocabulary at the High School Level," *Journal of Geography*, 55:369-74, November, 1956.
38. Rogers, Paul, *A Word to the Wise*, Prentice-Hall, Englewood Cliffs, New Jersey, 1961.
39. Salling, A., "Essay in Comparative Vocabulary Study," *Modern Language Journal*, 42:222-25, May, 1958.
40. Schubert, D. G., "How College Students Develop Their Vocabularies After High School Graduation," *California Journal of Secondary Education*, 34:328-30, October, 1959.
41. Singleton, Carlton M., "Vocabulary Development for Mature Students," *Research and Education in College Reading*, Ninth Yearbook of National Reading Conference, 72-78.
42. Solomon, Richard L., and Leonard Postman, "Frequency of Usage As A Determinant of Recognition Threshold for Words," *Journal of Experimental Psychology*, 43:195-201, March, 1952.
43. Swineford, Francis, and Peter M. Miller, "Effects of Directions Regarding Guessing on Item Statistics of a Multiple-Choice Vocabulary Test," *Journal of Educational Psychology*, 44:129-39, March, 1953.
44. Taylor, Stanford E., Helen Frackenpohl, Arthur S. McDonald, and Nancy Joline, *Word Clues*, Educational Developmental Laboratories, Huntington, New York, 1961.
45. Thompson, Ernest, "The 'Master Word' Approach to Vocabulary Training," *Journal of Developmental Reading*, 2:62-66, Autumn, 1958.
46. Triggs, Frances O., "The Development of Measured Word Recognition Skills, Grade Four Through the College Freshman Year," *Educational and Psychological Measurement*, 12:345-49, Autumn, 1952.
47. Trace, Arthur S., Jr., "Can Ivan Read Better Than Johnny?" *Saturday Evening Post*, May 27, 1961, 30:67-68.
48. Vernon, P. E., "The Estimation of Difficulty of Vocabulary," *British Journal of Educational Psychology*, 20:77-82, June, 1950.
49. Warner, John R., "The Inadequacies of Vocabulary Workbooks," *Journal of Developmental Reading*, 2:54-57, Winter, 1957.
50. Westfall, A., "Can College Students Expand Their Recognition Vocabularies?" *School and Society*, 73:25-28, January 13, 1951.
51. "What Ivan Reads," *Time*, November 17, 1961, pp. 52, 54.
52. Wiersema, M. Z., "Ceiling Unlimited!" *Education*, 80:76-79, October, 1959.
53. Winship, G. P., Jr., "Vocabulary Workbooks," *College English*, 21:438-43, April, 1960.
54. Young, James D., "An Experimental Comparison of Vocabulary Growth by Means of Oral Reading, Silent Reading, and Listening," *Speech Monograph*, 20:273-76, November, 1953.

Words in Context

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In many of the colleges and universities of the United States students enroll in courses designed to increase their vocabularies and to stimulate their interest in language. The fact that such courses are included in many college curricula indicates first of all that students and teachers both feel that education on the primary and secondary school levels does not sufficiently fulfill the word needs of the potential B.A. or B.S. Perhaps this insufficiency is brought about by the fact that there is too little reading done in the grades. For words must be encountered before they can be learned.

Within the broad framework of a general need for a sufficient vocabulary, students have particular aims and objectives for enrolling in college vocabulary building courses. Their specific reasons are, for the most part, excellent; and they pose for the teacher a number of problems that make the teaching of the course at times a real headache. The student who most provokes the teacher is perhaps the one who says, "I took this course because my boyfriend uses such big words that I can't understand him." At first glance the student's motive seems superficial, but when she adds, "Although I get the general meaning of his conversation, I don't know the exact meaning of some of his words," the teacher begins to wonder if perhaps her reason isn't more sensible than utilitarian. Perhaps, however, there are more cogent reasons for students' enrolling in vocabulary building courses, as the sampling of student opinion cited will show

1. "I think all students should have a vocabulary to match their education."

This is a provocative statement because it implies that students feel that they are receiving an education, but that their vocabulary is not adequate to the needs of communication. The student realizes his deficiency and attempts in the vocabulary building course to increase his vocabulary so that he will better demonstrate his knowledge. For this student the study of prefixes, suffixes useful Latin and Greek roots will prove an enlightening and useful experience. He gives the teacher little trouble, for there is between them a tacit understanding—the student is responsible for his lack of skill in expressing his ideas. And the teacher knows that the student will learn.

2. "A purpose of a vocabulary building course should be to teach the student how to find the meaning of a new word without the help of a dictionary."

The study of prefixes, suffixes, useful roots, etc. will not much benefit this student, whose feeling is, correctly, that the meanings of words should be revealed by a careful reading of texts. This student has, perhaps, an advantage over the one who made the previous statement. For he demonstrates an interest in books and an intellectual curiosity concerning the specific meanings of words as they convey ideas. For him words are the tools that reveal thought; too much looking in the dictionary impedes understanding. For this student, perhaps, a recognition vocabulary is more important than a functional vocabulary.

3. "Individuals and their educations are evaluated by, among other things, their correct usage of extensive vocabulary."

This student adds a utilitarian fillip; social pressures and the dollar sign loom ominously; and the word "extensively" poses an even further problem. True, an individual who can express himself well earns the respect of his contemporaries, his employers, and his subordinates. Competent control of the language implies positions of authority, higher income brackets. But the word "extensive": it implies glibness, jargon, pretentious diction. This student may memorize thirty or forty impressive-sounding words. But it will take a truly educated person to be able to distinguish between smooth talking and a genuine interest in communicating an idea.

4. "My basic motivation for taking this course was to broaden my effective vocabulary, so that I might be able to understand the meanings of more words and be able to use a greater variety of words in my conversations and writings.

Good for this student! He differentiates between a recognition vocabulary and an active vocabulary. His statement indicates that he feels that by using words frequently and properly, by seeing them often enough, they will pass from a passive state into an active one. What this implies is perhaps more explicitly stated in the comment that follows.

5. "The course's aim should be to widen the student's understanding of words met in reading and listening, and then to use these words in his own conversation and writings."

6. "I decided to take this course because I am embarrassed when in conversation with certain persons due to my limited vocabulary. Also due to this limitation I have difficulty understanding lectures in class."

The student's complaint is a familiar one. Indeed, the point is often lost because the student fails to understand the key word of a lecture, the word that reveals the meaning, the idea. Grades, then, students feel, are influenced by the extent of or limitations of vocabulary.

7. "I am taking this vocabulary course to learn to pronounce words correctly, to learn to read more intelligently and quickly and to be a better speller."

This statement adds the dimension of pronunciation and spelling to the general difficulties of comprehension. An efficient vocabulary enables students to save time, for it saves looking up words, losing the train of thought, and getting bogged down in detail. Paradoxically, the student who is the best reader, the student with the best vocabulary, is the one who is least conscious of words as words while he reads. For him the idea emerges out of the written language, pushes itself free of the spoken sentences, so that the intention of the writer or the speaker remains vital, cogent, completely understandable. And of course pronunciation. Try to pronounce the word "meringue" if you know no French.

8. "I really don't know why I am taking this course. Perhaps it is to prove my composition teacher wrong. He writes on all my themes that I should use simple words, that I used diction that is pretentious or vague."

This student of course can be told that a greater familiarity with the language will equip him to use his vocabulary with accuracy and with a careful eye to style. He can be told that an idea should be presented in as straightforward and economical a manner as possible. But he will mumble, "Then why work on vocabulary?"

9. And finally there is the about-to-be-graduated senior. "I need a one-hour course and this was it."

Student reasons, then, for enrolling in vocabulary building courses might be summarized as follows: to acquire a more versatile vocabulary, one that will indicate to other educated people the fact that they are capable of an intelligent appreciation of the subtleties and complexities of language as it is used to convey information; to get better grades while in school and better jobs once they leave; to keep those jobs and to advance in their work. All of these are good reasons and the teacher of the vocabulary course can do a great deal with the majority of these students. He can then point out to the girl who enrolled in the course so that she could understand her boy friend and better that she got to the right answer by means of the wrong reasons.

These are all good reasons cited above, but there are a number of students who find their way into the vocabulary building course for wrong reasons. And these students often face the teacher with serious and perhaps insoluble problems.

There are those students who have been told by their advisors, English teachers, history teachers, sociology teachers, etc., etc., that their grades were not up to par because of poor vocabularies. These students have been told—if not told, then led to believe—that a substantial increase in their vocabulary will automatically make them better students and receivers of higher grades. The inference, and it is a pernicious one, is that a course labelled "Vocabulary Building" will present the inadequate or badly prepared student with a nostrum that will immediately shoot him up from a D, or F, level of comprehension to the heights of Parnassus. The advisor, the teacher, the roommate give the inadequate student a hope, but it is a placebo. Instead the advisor, the teacher, the roommate avoid the real problem and lay it on the desk of the teacher of the vocabulary building course. Of course it is a futile statement to make, that vocabulary, like composition, cannot be taught by a single teacher alone; that it must be the joint effort of the entire teaching staff; that each teacher must make certain that the student expresses himself capably within that area of interest that he represents. Too often the history or the chemistry teacher cannot interest himself in anything beyond the immediate fact, the pressures of teaching being what they are. If the history or chemistry student cannot understand the immediate fact, the teacher says, "You don't have enough of a vocabulary." Well and good. The vocabulary teacher then has a classful of dunderheads and six or eight stdents genuinely interested in the problems of language and communication. To make matters worse, the teacher of the vocabulary course is aware of the fact that the vocabulary course is, more often than not, an elective; that all the students expect something interesting and exciting for having chosen to sit in his class. Where does he begin?

What does he do when he notices Mr. Smith sleeping restfully in the back of the room and says, "Mr. Smith is fast asleep in the arms of Morpheus," to which he hears the drowsy answer, "I don't sleep in nobody's arms." Does he stop and explain the allusion, then go on to the word "morphine", boring those who know the reference? Or does he bite his tongue and wish that he had never spoken in an allusive manner at all? And what does he say to the student who takes things for "granite," the student who refers to the theme of "moodability" in Shakespeare's sonnets, the student who goes all out for "extra curricular" activities, the girl who writes that Browning's poems were so difficult to understand that societies had to be formed to "interrupt" them, the boy who spells "our" as "are", the boy who writes, "It mighted been"? And the list could be extended on and on. These students, of course, spell by ear. They have not the familiarity with the written word that enables one to express himself in a manner that benefits a college student. For these students a course of reading is the best method to advance in both knowledge and the accumulation of vocabulary. And reading habits, of course, begin in the home.

A great many students spell badly, leave out words, make errors in diction because they read too fast. There are courses in many of the colleges and universities, and in many of the high schools as well, designed to introduce students to the proper techniques of reading. Too often the reading teacher puts the emphasis on speed at the expense of comprehension. If the student does not look at the words, think about them occasionally, then it follows that his understanding of words may be distorted or indeed wrong. The danger with speed reading courses is that the emphasis falls on assimilating the broad outline of an idea as quickly as possible; hence the shade of meaning, the nuance, the feeling that a word or a phrase conveys is lost. The vocabulary teacher must reverse the principle that the dedevelopmental reading teacher believes in. He must slow the student down, force him to look at words, to understand the various levels of meaning that one word may assume. Oftentimes, to accomplish this, he brings into the classroom a poem, and he and the class spend an entire period on the sixteen lines that comprise, say, a sonnet. Certainly speed here is no advantage. In the August 26, 1961, *Saturday Review*, George Stevens pointed out that after a reasonable apprenticeship in the disciplines of developmental reading a friend of his made it all the way through Shakespeare's plays in ninety-one minutes, twenty seconds. Mr. Stevens's friend observed, "It's as easy as 3.1416. When you read it this way, it makes you wonder what it is people see in this stuff."

This brings me then to the method that I feel is best suited to meet the needs of the average class interested in building vocabulary. This is to look at words in contxt, to judge the meetings of words as they appear in a given situation. If words of maximum, intermediate, and little difficulty are italicized or in some way called attention to, then the student whose interest in words has already been stimulated may go quickly over the words that he knows and spends more time with less familiar ones. The poorer student, on the other hand, will use his dictionary, and, slowly but surely, find that words can be interesting and exciting; that perhaps, after all, the way to better grades is to understand what is read; perhaps, through a process akin to osmosis, the word read will pass into the student's active vocabulary. And, hopefully, the student who spells by ear may discover with delight that things are taken for "granted," that in Shakespeare's sonnets one encounters the theme of "mutability," that activities are "extra curricular," and that although Browning should, perhaps, have been interrupted, societies were formed to "interpret" his pieces.

The way to improve vocabulary is to hear and see words until they become familiar. Almost anyone can learn a hundred or a thousand new words, if necessary, but he will not retain those words unless they become meaningful to him and unless he uses them. A vocabulary building workbook should be designed to place emphasis where it belongs, on the word as it appears in context. The resemblance of such a book to an anthology will be inevitable, and the essays should be chosen to cover a wide and interesting range of subject matter. Repetition whenever possible should be stressed. And exercises should be developed that call attention to families of words or words of related meanings. There should be included in this textbook a list of useful prefixes, suffixes, Greek and Latin roots, but the emphasis should fall on the language as it is used. The greater variety the book contains, the less possibility will there be for tediousness and dullness, one of the chief drawbacks of many vocabulary building courses. The textbook should also contain a section on the development of language, this to show the student why and how words have come to mean what they do. Words such as "act" and "indeed" can be explained on this basis. Most important af all, the best as well as the dullest student will be simulated. And the teacher wlil also learn something about language, too.

Misinterpretations of Theory and/or Research Lead to Errors in Practice

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It is with much misgiving that I discuss this topic. Whenever one speaks of misinterpretation one automatically implies that there may be more than one interpretation and indeed that what may be labelled by one as a valid interpretation may be perceived by another as a misinterpretation. Furthermore, what is today's "truth" may be tomorrow's misinterpretation and today's misinterpretation may become tomorrow's truth. The history of reading instruction is full of examples of misinterpretations of theory and/or research or of faulty research.

Prior to 1890 and William James, children were required to read materials far above their comprehension level. These difficult materials were thought to develop the mind. The emphasis was on the strengthening of the mental faculties.

Reading itself was considered to be a unitary process that the pupil learned once and for all times by the end of the third grade. It was assumed that by that time children would be equipped to handle all reading problems. Even today, some would suggest that reading is the ability to pronounce the words on the printed page. As soon as the child had learned to vocalize correctly, he would be ready to tackle *all* reading problems.

Closely akin to this type of reasoning is the recommendation that reading skills develop through unhampered reading of self-selected materials. Practice alone is not enough; neither is reading enough. Practice must be meaningful and reading skills develop best when the child is ready for them and when their introduction is followed by a planned sequential program for maintaining them.

However, today's emphasis on sequential development may be at least somewhat unfounded. Children learn language skills during the first years of life without sequential instruction. It may well be that the child's development is sequential, but the learner determines that for which he is psychologically ready.

Not so long ago we saw attempts to remove all vocalization in learning to read. Today, studies show that some form of subvocalization seems to accompany most reading.

On the basis of relatively little research children have been kept from reading until they have reached the mental age of six and a half. Age is not a valid criterion of reading readiness; neither is mental age. Auditory and visual discrimination skills perhaps play a greater role than they have thus far been assigned.

Adjustments in reading programs have been made for boys and girls on the basis of sex. Girls in our schools on an average achieve better in reading. Adjustments indeed need to be made, but perhaps not for the reasons normally advanced. It has been suggested that girls have an inherited language advantage. However, studies in other countries, where men predominate in elementary teaching, indicate that boys there hold the same advantages as girls here. They are the ones who excel in reading.

Reading practitioners long have been plagued by the reversal problem. It is not difficult to find books and research articles in which the problem of reversals before the age of nine is minimized or perhaps even completely ignored. We read that reversals before the age of nine are not serious. It is quite possible that this assumption has hampered differentiated instruction, proper remediation, and serious investigation of their etiology.

For years, and in many textbooks today, teachers have been and are being urged to teach the child to read two and three words per fixation. However, the best studies show that even college students rarely read more than one word per fixation. The assumption that children could, or at least normally would, recognize such large units, was based on misinterpretations of tachistoscopic research and resulted from a misunderstanding of the basic differences between tachistoscopic and normal reading. The limiting factor in recognition is the mind rather than the eye. And, the tachistoscopic span is not equivalent to the thought-unit in reading.

On the basis of other tachistoscopic research, some have suggested that reading improvement may best be obtained through eye-span development. Eye-movements were said to cause rather than to reflect efficient reading.

Through the years numerous fallacies in reading method have appeared. At one time the alphabet method was considered to be the only correct method of teaching reading. Subsequently, in one form or another it was suggested (1) that learning of the alphabet may even be a hindrance to successful learning of reading; (2) that phonically-trained children are necessarily word-callers; (3) that phonics is taught incidentally; and (4) that phonics training will turn children away from reading.

Perhaps the most recent practice that is being carefully reexamined is vocabulary control. We have just gone through a period in which the child's initial reading vocabulary has been excessively controlled.

Recent research tends to indicate that the type of control exercised in basal readers may be relatively useless. Gates found the third graders generally were about as ready to read the fourth-grade vocabulary as the third-grade vocabulary that they were presently studying. Apparently, by the third grade pupils had either met most of the so-called "new" words or had developed techniques and permitted them to attack successfully the fourth-grade vocabulary.

Let us now look more closely at another example of theory and research misintrepretation. The word-method of teaching reading, frequently termed the sight-method or the configuration method, was based on research by Cattell in 1885 and by Erdmann and Dodge in 1898. They found that in a given unit of time a person could read only three or four unrelated letters, but that in the same unit of time it was possible to recognize words containing three to four times as many letters. The practical result of this finding was the assumption that the child characteristically responds to total form and that the word method is the proper unit for teaching reading. This interpretation of the research—which has dominated reading instruction during the last sixty years—is not necessary.

Recent experiments indicate that even when certain letters in words are deleted or the top-half or lower-half of the word is not shown, the person will "see" the total word. A person through experience learns to interpret vast accounts of data that are only partially seen. In World War II pilots inferred the nationality of an approaching plane from key specifics of the plane. Cattell's subjects may well have inferred letters even though they did not actually see all the letters that composed the word.

Another argument for the configuration method came from Gestalt Psychology. This theory maintains that the perceiver characteristically reacts to the meaningful unit. Since in language the word is the smallest meaningful unit, it was assumed that in reading, the word is the basic unit of perception. Again, the assumption seems invalid.

The confusion stems from the connotation of the word "meaning". Reacting to the meaningful unit is not necessarily the same as reacting to the meaningful language unit.

In Gestalt psychology meaning refers to the organization or structure of the perceived unit rather than to the experimental content to which the word refers. In such a unit there is an interrelationship of parts. Meaningful in this sense is not possible without previous experience, and meaningful materials are partially learned materials.

The word configuration is not meaningful to the child. It has meaning, that is, an experience has been associated with it, but unless the child sees the interrelationship of the parts of the word or that the total form is something more than the sum of its parts, the form is not meaningful in the Gestalt use of the word. Gestalt psychologists would be concerned with the internal structure of the word. To say that a word is "meaningful" is not the same as saying that it has "meaning".

In fact, experiments today indicate that the "perceptual whole" is a relative term. It is different for different individuals and is dependent upon the ability, experience, purposes, maturation, perceptual skill, and learning habits of the perceiver. And it depends on the nature of the materials. Some children react to so-called "wholes"; others react to so-called "details" which for them are wholes. The perceptual unit is always a whole.

We are not trying to dispute the validity of the total-word method of the teaching reading. We merely raise the question whether the configuration method rests on an assumption that is in reality a misinterpretation of both research and theory. If the total configuration, the word, is meaningless to a given child, the details then seem to dominate perception and may become for that child the perceptual and meaningful whole.

The word is not inherently meaningful. Its configuration is meaningful only if through previous learning and experience the child has learned to interrelate the parts that compose it. And so it is, that a child may know a meaning for a word but may not be able to identify it. We need to teach children the meaning of a word; but we also must make the word form meaningful to them. These are two distinct processes. Developing meaningfulness for the total word form must at times begin with the unit that is meaningful to the child, within the child's perceptual whole, which may be a sound or a letter. And sometimes, identification is not learned best through the total configuration.

Refinement of a Readability Formula

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Several months ago a front page story in the *Christian Science Monitor* started with a lead which defined "mendacity" as that characteristic which a statistician exhibited if he believed his own work. Occasionally those of us who work with readability might wonder if we shouldn't be described the same way.

Readability—which we may define as attempts to discover and measure those elements which cause reading material to be more or less difficult—is a funny business.

It may well be, with the exception of phonics, of course, one of the most widely challenged aspects of our work in reading. It has been variously described in terms of everything from type face to reader-interest and in all combinations.

Viewpoints concerning its value run the gamut from one extreme to the other. At one extreme is the unsophisticated statistician who feels "We've measured. We've quantified. We have found *the* reading difficulty level," and who is little or not at all disturbed with what it is we have—or have not—measured. At the other extreme are those lovers of niceties and respecters of nuances who claim that written language will defy complete quantification and therefore should not be used at all.

Both are partially right. We have measured—something. We have not measured all. Today we are not here to justify readability formulas per se. It does seem appropriate, however, to be aware of diverse viewpoints and suggest that no extreme position at this time seems realistic. Many formulas exist. They are widely used. They should be used with knowledge of the inherent limitations in the whole endeavor and the specific characteristics of the tool in use.

Another facet of this work is that it is just plain dull. Perhaps the rationale behind, and the development of, a specific formula is not dull to those who develop it; but to those who consistently apply a formula for practical purposes the work becomes tedious in repetition and costly in time-consumption. (Jeanne Chall (2) comments, perhaps with tongue in cheek, that Rudolph

Flesch is the only researcher in this field who has been able to turn his work into popular books.)

And speaking of Flesch suggests another aspect of this work. Readability has been an inter-disciplinary endeavor. English departments, journalists, classroom teachers, psychologists, publishers, government agencies, industries and still others contribute to the research and application, tedium and challenges not withstanding.

There are obvious practical reasons for this. Without some reliable measure of difficulty those who need to be able to match reader ability and difficulty level can rely only on judgment. Trained judgment can be good, but there is general agreement that, even with its limitations, a good formula can be better.

It is no exaggeration to say that the whole history of research in readability has been an attempt at refinement. There is nearly a half-century of research behind us now in this work. First refinement existed simply in the efforts to devise some method of measurement less variable and subjective than the judgment approach. Earlies research was devoted to vocabulary studies. The next phase was the identification of the many elements which influence difficulty. This might be called refinement only in the sense that it was a move away from judgment, because the results got quite elaborate. Some studies identified as many as 80 influencial elements. The third period in research saw the elimination of most of these same factors with retention of those few which produced the greatest reliability.

At this time, mainly through the use of correlation techniques, most of the elements identified as influencial in difficulty level have been eliminated from formulas and the most widely-used ones rely on difficulty scores derived by using two factors: word count of difficult or unfamiliar words, and average sentence length. Some of the formulas encompass other elements in a constant used in calculation. Generally, research shows that additional elements added to the evaluation do not add enough predictive power or cut enough from measurement error to pay for their inclusion.

So efforts in the last decade or so have been directed mainly, although not exclusively, at refining already existing formulas. Even new ones are attempts at some refinement, simplification, or greater objectivity through different approaches to use of the same two factors of vocabulary load and sentence length.

Refinement can be said to take two major directions: attempts to 1) sharpen, in some way, the predictive power of a tool or 2) make a formula more efficient without loss in prediction so that essentially the same results will be achieved for a more realistic investment in time and effort. A brief review of some of the work published since the development of the Flesch and Dale-Chall formulas in the forties will be illustrative.

In 1951, Farr, Jenkins and Paterson (5) report a simplification of the Flesch Reading-Ease formula. This simplification amounts mainly to a utilization of a count of one-syllable words per 100 words in place of the polysyllable count specified by Flesch. These authors claimed this count could be achieved more rapidly and by personnel with less training.

Flesch (6) apparently had no desire to own this step-child, and responded a few months later by asserting that the new method would not save time, would require just as much knowledge by the counter, and would give a cruder index by distorting the extremes. Farr, Jenkins and Paterson (7) then introduced some evidence from actual timed experiments with naive counters to refute these objections. Dunnette and Maloney (3) present a factorial analysis of the original and the simplified Flesch formulas and report, on counts both of accuracy and time used, that the simplified version ranks highest. England, Thomas and Paterson (4) check out Flesch's claim that the simplification would be less reliable and find that the two formulas are relatively equal in reliability.

In 1956 Stone (14) presented a possible constructive criticism of Spache's formula for measuring difficulty of Primary Reading Materials by offering a revision of the old Dale list of 769 easy words. There is not much evidence to substantiate that this is a genuine improvement, but it does point up a limitation we all recognize—the fear that word lists may become uselessly dated and the need for much revision and validation of word lists both at the primary and more advanced levels.

Recently Powers, Sumner and Kearl (10) replowed some old ground in a new manner. They ran a recalculation of four adult readability formulas: Dale-Chall, Flesch, Farr-Jenkins-Paterson and the Gunning Fog Index, hoping to add greater precision in two ways. The originals of these formulas (both the Farr-Jenkins-Paterson and Gunning Fog Index are simplifications of the Flesch formula) were based on reading comprehension tests of 1926, and the original measures offered no standard error figure. The reading tests used by Flesch and Dale and Chall—the McCall-Crabbs Graded Test Lessons in Reading—were revised in 1950. So the formulas were recalculated with the newer reading lessons; identical measurements and criteria were used; standard errors were calculated and the resultant indices were assigned corresponding grade levels so that further comparative evaluation of the readability difficulty could be made. On this recalculation the Dale-Chall formula seemed to these authors more desirable because of slightly smaller standard error and higher predictability.

A few months later Powers and Ross (11), as a result of this work on recalculation, published diagrams which increase the convenience of applying any of these four formulas. These simple diagrams consist of two columns, one giving average sentence length and the other word count. By placing a rule from a determined point in one column to the other appropriate count in the opposing column the rule cuts across a scale indicating approximate grade and general difficulty level of the material. These diagrams also simplify direct comparison of the four formulas.

For work with primary-grade material, Safier (12) reported a method to reduce time in using the Spache Readability Formula. By using a word-count of exactly 100 words, rather than end of sentence after 100 words, sentence length can be obtained from conversion table and per cent of hard words is same as word count. Safier feels that the speed and simplicity of this method should encourage teachers to take more samples in instructional materials.

A new two-factor formula, the Devereaux Readability Index, was published last spring by E. A. Smith (13). This index, if subsequent investigations support its predictability, has the advantage of not employing a word list. Evaluation of difficulty load is derived from averaging number of character-spaces per sentence, on the assumption that word length can be substituted for word lists and syllable counts. Examination does not indicate this Index would be any great time-saver but a formula without a word list does have certain decided advantages.

This fall Powers, Kearl and Nyman (9) published the results of a study they made attacking the problem of the cumbersome word-list. They attempted to shorten the 3000-word list used with the Dale-Chall Formula, recognizing the list as one of the greatest time-consumers in application of the formula. They culled from the list the words which, according to the Thorndike-Lorge list, do not appear frequently in literature. "Only Dale words which were also among the 1,037 most frequent Thorndike-Lorge words were retained for the new list of 920 words."

Unfortunately, this simplification had lower predictive power and a large error term on the criterion passages than either the Dale-Chall or Flesch formulas. It was about equal, however, to the Farr-Jenkins-Paterson formula and the Gunning Fox Index. The authors note that their attempt was unsuccessful because the loss in precision and predictive power was too great for tolerance. They urge that other schemes for shortening the list be tried, but until a suitable replacement is developed, they recommend the use of the Dale-Chall formula, using the current Dale world list. These authors have already defended, elsewhere, their preference for the Dale-Chall formula over other available ones (10).

For the past year the staff at the Oklahoma State University Reading Center has been interested in making more frequent use of readability measures of materials used in classroom in-instruction and in research problems. Ordinarily, the time consumed in arriving at these indices by using formula instructions makes extensive application prohibitive, particularly on long books such as college texts. For example, with the formula we preferred to use, the Dale-Chall sampling of one text of 600 pages would be about a 10-hour task.

One of the ways to avoid this lengthy time-work expenditure would be to sample less often than called for in formula instructions. Every readability formula offers recommendations concerning sampling techniques, but there is very little research to support the use of any particular procedure. Since the enormity of the task of readability measurement as it now stands is a barrier to both research and application we were interested in de-

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termining if a procedure using a sample taken at less frequent intervals would yield a dependable readability index. In other words, we wanted to see if we could get just as reliable an index in a more efficient manner.

We used for our first investigations (8) the five Oklahoma state-adopted high school biology textbooks. Specifically, we wanted to determine whether samples taken at 50-page intervals would yield as dependable grade-placement indices as samples taken at the 10-page intervals suggested by the formula. Three total-sample indices were figured: one from 10-page samples; one from 50-page samples drawn from the 10-page sampling; and one at 50 pages not falling in the same sample material as the original ten-page one. The t-test of significance was applied, and no significant difference was found to exist between any of the three indices on any book, or the three totals for all the books combined.

Then eight introductory psychology college texts were measured. Again a sample was taken at 10- and 50-page intervals and a 50-page sample was drawn from the 10-page sampling. And again no significant difference was found between the raw score averages from the 50- and 10-page samplings.

It would be slight misrepresentation, however, not to point out that in some cases of converting raw score indices to grade-level there would be a difference between two samples. This variation can occur easily even when the mean averages are not statistically significant because it only takes .1 point to change grade level. However, this calls for no more common sense and recognition of limitation than use of the formula in the original manner. Those of you who are familiar with the formula will recall, for example, that a raw score of 8.9 gives a difficulty level of grades 11-12, while 9., a figure .1 point higher, corresponds roughly to grades 13-15. Obviously, the raw score, as well as the broad grade level indicated, should be considered in application and interpretation. This is true no matter what sampling interval one might use.

So we are ready to conclude that for practical purposes, in similar material, the 50-page count is satisfactory. We qualify in this manner because we are not confident that for strictly research purposes there is sufficient evidence to justify this expediency. But, considering the improved efficiency and the general rough estimate available in any case, this seems entirely defensible for those who had rather make some reasonable estimate rather than none because of insufficient time.

Certainly, many questions are not answered. Stating that we feel a 50-page sample will derive a reliable index for this kind of material is not the same as saying that a 50-page sample should be substituted always for the 10-page sample. These books were 400-700 pages in length. A 50-page sample was an average of 8 to 14 separate samples. It is unlikely that this same reliability would exist in books of, say, 150 pages where sampling at 50-page intervals would yield only three samples. This only suggests other questions which need to be answered. Is there a relationship between number of samples necessary for a dependable index and length of the material being evaluated? We know formulas in wide use today need additional validation in content areas other than those of the original work. Determining if ratio of sample to total length is relevant, and the development of more efficient sampling techniques which could result from this, could encourage further research needed in this area.

References

1. Chall, Jeanne, "This Business of Readability,"*Educational Research Bulletin*, 26:1-13, January, 1947.
2. Chall, Jeanne, *Readability: An Appraisal of Research and Application*: Columbus, Ohio: Bureau of Educational Research, Ohio State University, 1958.
3. Dunnette, Marvin D., and Paul W. Maloney, "Factorial Analysis of the Original and the Simplified Flesch Reading-Ease Formulas," *Journal of Applied Psychology*, 37:107-110, April, 1953.
4. England, George W., Margaret Thomas, and Donald G. Paterson, "Reliability of the Original and Simplified Flesch Reading-Ease Formulas," *Journal of Applied Psychology*, 37:107-10, April, 1953.
5. Farr, James N., James J. Jenkins, and Donald G. Paterson, "Simplification of Flesch Reading-Ease Formula," *Journal of Applied Psychology*, 37:111-113, October, 1951.
6. Flesch, Rudolph, "Reply to Simplification of Flesch Reading-Ease Formula," *Journal of Applied Psychology*, 36:54-55, February, 1952.
7. Farr, James N., James J. Jenkins, Donald G. Paterson, and George W. England, "Reply to Klare and Flesch re: 'Simplification of Flesch Reading-Ease Formula'," *Journal of Applied Psychology*, 36:55-57, February, 1952.
8. Martin, Mavis, and Wayne Lee, "Sample Frequency in Application of Dale-Chall Readability Formulas," *Educational Research Bulletin*, 40:146-149, September, 1961.
9. Nyman, Patricia, B. E. Kearl, and R. D. Powers, "An Attempt to Shorten the Word List with the Dale-Chall Readability Formulas," *Educational Research Bulletin*, 40:150-152, September, 1961.
10. Powers, R. D., W. A. Sumner, and B. E. Kearl, "Recalculation of Four Adult Readability Formulas," *Journal of Educational Psychology*, 49:99-105, April, 1958.

11. Powers, R. D. and J. E. Ross, "New Diagrams for Calculating Readability Scores Rapidly," *Journalism Quarterly*, 36:177-82, Spring, 1959.

12. Safier, Daniel, "Notes on Readability," *Elementary School Journal*, 59:429-430, May, 1959.

13. Smith, Edgar A., "Devereaux Readability Index," *Journal of Educational Research*, 54:299-303, April, 1961.

14. Stone, C. R., "Measuring Difficulty of Primary Reading Material: A Constructive Criticism of Spache's Measure," *Elementary School Journal*, 57:36-41, October, 1956.

Utilization of Readability Formulas for Effective Instruction

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Students understand what they read and they learn from their reading if the textbooks and other printed materials are within their grasp. In other words, reading materials become effective tools for the mastery of content and concepts when they are readable. If course materials are on a level above the reading skill of the students, frustration, anxiety and failure result. Without doubt, the relationship between the difficulty of material and the reading ability of the students presents one of the most pressing problems for those who rely upon printed materials for learning experiences. The measurement of readability, while comparatively recent in origin and limited in sophistication of development, parallels in importance the measurement of reading ability in the development of effective instruction.

Many of the first efforts in preparing readability formulas were concerned with the analysis of children's reading materials. The appearance of Gray and Leary's *What Makes a Book Readable* (9) in 1935 gave impetus to work on adult and upper-school level readability problems. The development of formulas by Lorge, Yoakam, Flesch, Dale and Chall, and others has provided valuable appraisal instruments for those who write, edit, or instruct with printed materials.

Readability formulas have been used on nearly every type of printed material (3; 4; 11; 14) including books, newspapers and journals for children, adults, schools, farmers, unions, industry, teachers, the armed services and many other government agencies. Chall (4) reported that early uses of the Dale-Chall readability formula included the analysis of unpublished manuscripts, guidance in writing, editing and rewriting, a research aid, and a teaching aid regarding readability concepts and techniques.

The principle result of all this activity was the discovery that many writers were not communicating adequately with their readers. Specialization of knowledge has come to the place where isolation of ideas is seriously hampering broad understanding and acceptance of new developments. The awareness of the need to communicate has influenced the preparation and the selection of printed materials so that they are more appropriate to the reading level of the general reader than ever before. Also, there has been a marked effort to make books and materials more readable in the classroom situation. The results of this development have been felt to some extent in all areas of the curriculum and at all levels. Reading teachers at all school levels have been the greatest beneficiary of the attention given by authors and publishers to readability. It has made their task of teaching the remedial reader vastly more successful.

Chall (4) reported that of all the users of readability formulas, school people most frequently indicated that they did not find time available to make much use of the formula. However, she also described how the Oakland public schools used the Dale-Chall formula as one of the several devices for making secondary school administrators and teachers aware of the reading problems brought about by population shifts in the community during the war. As a result of the analysis of their textbooks, the Oakland schools spent more money on simple reading materials; ordered small assortments of books on different reading levels to meet the range within a class; and listed several approved textbooks on different reading levels for a course.

In reviewing the literature in readability for the last decade we find numerous other reports of attempts to use readability estimates to make the instructional program more effective. Some of these indicate that readability estimates have been used as one criterion in selecting textbooks for a particular area of the curriculum. Others have compared the results of readability appraisals with the reading ability of the group for whom the materials were intended.

Crooks and Smith (7) reported a study of reading ease of popular college science books to determine whether some of the failures in science may have been contributed to by the books that were being used. The Flesch Reading-Ease formula and the Human Interest Scale were applied to twenty books from biology, botany, chemistry, natural science, physical science, general education, biology and physics. All of these books were used in introductory and general education science courses during the first two college years

The results of the analysis indicated that eighteen of the books were rated as *difficult* to read, two were *fairly* difficult, none was *standard* or *fairly easy.* All twenty were rated dull on the Human Interest Scale. It was further noted that when books were available in more than one edition the revised edition tended to be more difficult. The addition of new materials reflecting new developments are making science textbooks longer and more difficult. Students in advanced classes, science majors, teachers, and subject matter specialists would probably rate all of the books from good to excellent. But these people know college science; they know the facts; they are acquainted with the concepts and terminology. To the student these excellent books are often too compact, too fact-burdened, too complex and too research-padded.

Major and Collette (13) reported an investigation into the readability of college general biology textbooks. They noted that liberal arts students who are not majors in any of the biological sciences are often unable to understand adequately the reading material of general biology. The study was made to determine whether current preferred college general biology textbooks are written within the estimated reading comprehnsion of collge freshmen. A survey of 136 institutions resulted in a list of ten textbooks used by nearly 80 per cent of the schools. The textbooks were then analyzed with the Flesch Reading-Ease formula. They found that all the textbooks were written at least one grade above the reading level of college freshman, and two years above the reading comprehension level of average ability students. These textbooks would not be able to serve as effective and efficient aids in the study of biology because of the high percentage of difficult reading assignments. No progression in difficulty was noted; in fact, difficult passages occurred as frequently at the beginning of a textbook as in any other section.

Of the several studies contrasting the readability of material with the reading ability of the students, the investigation by Bentley and Galloway (2) well illustrates the usefulness of this approach. They reported a comparison of the readability of vocational agriculture reference books with the reading ability of the students using these materials. Vocational agricultural students in twelve relatively large and twelve relatively small high schools were tested with the *Cooperative English Test*, C1, Reading Comprehension, and the *Iowa Tests of Educational Development*, Test

6, Ability to Interpret Reading Materials in the Natural Sciences. Ten of the books found most frequently in the libraries of the cooperating schools were measured for readability by the Dale-Chall formula.

Bentley and Galloway found that these vocational agricultural reference books had a mean readability level appropriate for students of average reading ability in one of the four high school grades, but in general, the books tended to be too difficult for the students in the study.

The data concerning the vocational agricultural students indicated a number of factors that would require the careful attention of their teachers. The students' reading ability varied widely both among classes, and within classes at a given grade level; they scored from one to two grade levels higher on the reading in the natural sciences than they did on the general reading test; their mean reading abilities ranged from zero to three grade levels below their peers on the basis of the publisher's norm groups.

Recently, the Reading Center at Oklahoma State University became interested in examining the nature and difficulty of the reading demands required of students in various curricular areas. The following appraisals were made primarily to aid in the improvement of instruction by making use of the readability index as one criterion for the selection of textbooks for specific groups. Estmates of readability were made using the Dale-Chall formula on the available choices of textbooks. These ratings were compared with the *Nelson-Denny Reading Test* scores of Oklahoma State University students, and public school students who were enrolled in courses that used these textbooks.

Attention was first directed to the textbooks in science that were on the Oklahoma secondary school adoption list. Repeatedly, Mallinson and his co-authors (14, 15) have emphasized the fact that their finding in readability indicated that science textbooks were consistently too difficult for the students for whom they were intended. In contrasting the readability of the books with the reading ability of the students it was found that in biology, a tenth grade subject, the books ranged in difficulty from an estimated grade 9.2 to 11.0. Mallinson contends that in order to be effective the reading difficulty of books must be at least one grade level below that of the students for whom it is designed. In using this criterion with the biology data (1) it was found that 59 per cent of the 357 students enrolled in biology courses would be able to read the easiest textbook, and only 37 per cent would be able to read the most difficult textbook.

The textbooks for chemistry, an eleventh grade subject, had a range from an estimated grade of 12.0 to 13.0. Again, using a criterion of one grade above the Dale-Chall scores it was found that 47 per cent of the 135 students enrolled in chemistry would be able to read the easiest chemistry textbook and only 34 per cent would be able to read the most difficult textbook on the list.

The results of the appraisal of the twelfth grade physics textbooks, however, differed considerably from the other science areas. These books had a range of readability ratings from an estimated grade of 9.8 to 12.1. Using a criterion of one grade above the Dale-Chall scores it was found that 90 per cent of the 62 students enrolled in physics courses would be able to read the easiest physics textbooks, and 62 per cent would be able to read the most difficult textbook on the list. This should not suggest that physics is an easier science, or that the textbooks have a lighter concept load; it does suggest that the verbal material of the textbooks is presented in relatively simple words and sentences. The high percentage of students able to read the physics textbooks is accounted for, in part, by their relatively high reading ability, as well as the easier rating of the readability formula.

This fall the Oklahoma State University Reading Center turned its attention to its own problems of material selection for the college and adult reading classes. In the past the criteria for selecting materials for the college and adult groups consisted of a variety of factors including readability. However, the readability estimate was usually based on the staff's hunch that the book was easy enough. When the instructors attempted to differentiate instruction by using several books with a class, the hunch was employed once more to determine which of the books could be used with each group of the students. This semester, after narrowing the possible choices of textbooks by using such factors as; authorship, organization, content and relatedness to course purposes, the staff proceeded to analyze the remaining seven choices with the Dale-Chall readability formula. The readability levels of the materials are shown in Table I. Using a level of one grade above the Dale-Chall scores it was found that 75 per cent of the 187 students enrolled in the reading improvement courses were able to read the easiest reading textbook, and 40 per cent were able to read the most difficult textbook selected for appraisal.

TABLE I

DALE-CHALL READABILITY LEVELS OF ADULT READING IMPROVEMENT BOOKS

	Books	*Raw Score Average*	*Corrected Grade Levels*
1.	Braam, Leonard S., and Sheldon, William D., *Developing Efficient Reading*, Oxford University Press, 1959.	7.45	9-10
2.	Brown, James I., *Efficient Reading*, D. C. Heath and Company, 1952.	7.27	9-10
3.	Gilbert, Doris W., *Breaking the Reading Barrier*, Prentice-Hall, Incorporated, 1959.	7.00	9-10
4.	Gilbert, Doris W., *Power and Speed in Reading*, Prentice-Hall, Incorporated, 1956.	8.42	11-12
5.	Miller, Lyle L., *Maintaining Reading Efficiency*, Holt, Rinehart and Winston, 1959.	7.87	9-10
6.	Shaw, P. B., and Townsend, Agatha, *College Reading Manual*, Thomas Y. Crowell, Company, 1959.	8.25	11-12
7.	Sherbourne, Julia F., *Toward Reading Comprehension*, D. C. Heath and Company, 1958	7.39	9-10

Five of the textbooks fell in the Dale-Chall corrected grade 9-10 level with some variations within this range. The appraisal indicated that any of these five textbooks would be suitable for those students who were enrolled in the reading improvement course for developmental reading objectives, and for many of the remedial students as well. The cluster of estimates around the grade 9-10 rating points out the necessity of locating other materials that will offer greater challenge to the better readers in the group. A search is also indicated for more appropriate materials for the remedial readers who would not be expected to read even the easiest textbooks appraised.

In examining the variation in readability score from sample to sample in each book no indication of planned progressive difficulty was found. The most difficult group of samples was as apt to be found in the second quarter of the book as in the fourth quarter, while the easiest group of samples was as likely to be found in the third quarter of the book as in the first. However, it did appear that several of the books were striving for uniformity of difficulty.

The implications of these simple contrasts in high school science, and college and adult reading for the classroom are:

1) For high school physics and college reading there are textbooks which appear to be suitable for most of the students. Not only were the books easy but the students in physics were among the most able in the school, and the students in the college reading course tended to have needs more developmental than remedial in nature.
2) However, in the other high school sciences even the easiest book in biology was found suitable for less than 60 per cent of the students; in chemistry less than 40 per cent. It is difficult to rationalize the selection of a teaching aid so lacking in usefulness.
3) While it was anticipated that the reading improvement staff would still need to find suitable materials for the slowest readers it was found that many of the better students might also be unchallenged by the current choices of the material.
4) As the reading textbooks' internal organization did not reflect any scheme of progressive difficulty they may be limited in their use for many of the students.

There has been no intent to state that a certain book is or is not suitable for a particular course at a certain level; however, because selection and utilization of textbooks are based on specific groups the value of using readability measurements has been illustrated to present its contribution to more effective teaching.

The measurement of textbook readability has as important a role to play in creating an effective teaching-learning situation as the measurement of the students' reading ability. It is apparent, however, that further refinement of the various formulas is necessary before we place the same degree of confidence in readability measurement as we do in reading ability measurement. The grade placement indexes are, at best, rough approximations of difficulty. The final test of readability is whether the textbook can be read effectively by the student. The formulas analyze certain specific factors of the material and then make predictions, not statements of fact, concerning the material.

The first obstacle in utilizing readability formulas does not merely involve the grossness of their estimates, but their lack of employment by people who use printed material for instruction. There should be the same concern by school people about readability as there is about the reading ability of students. Considering the great variability of the reading skill of upper school and adult level students, teachers cannot afford to be ignorant of the appropriateness of the materials they use for developing content and concepts in their courses.

Bibliography

1. Belden, Bernard R. and Wayne D. Lee, "Readability of Biology Textbooks and the Reading Ability of Biology Students," *School Science and Mathematics*. 61:689-693, December, 1961.
2. Bentley, Ralph R. and R. Edward Galloway, "A Comparison of the Readability of Vocational Agriculture Reference Books with the Reading Ability of the Students Using Them," *Journal of Experimental Education*, 29:373-383, June, 1961.
3. Brayfield, Arthur H. and Patricia A. Reed, "How Readable are Occupational Information Booklets?", *Journal of Applied Psychology*, 34:325-328, October, 1950.
4. Chall, Jeanne S., "A Survey of Users of the Dale-Chall Formula," *Educational Research Bulletin*, 35:197-212, November 14, 1956.
5. Chall, Jean S., *Readability: An Appraisal of Research and Application*. Columbus, Ohio: Bureau of Educational Research, Ohio State University, 1958.
6. Chall, Jeanne S., "This Business of Readability: A Second Look," *Educational Research Bulletin*, 35:89-99, 111, 112, April 11, 1956.
7. Crooks, Kenneth, B. M., and C. H. Smith, "Reading Problem in College Science Instruction," *Science Education*. 41:54-57,, February, 1957.
8. Dale, Edgar, and Jeanne S. Chall, "Developing Readable Materials," *Adult Reading*, National Society for the Study of Education, Fifty-fifth Yearbook, Part II, Chicago: The Society, 1956.
9. Gray, William S., and Bernice E. Leary, "*What Makes a Book Readable*, Chicago: University of Chicago Press, 1935.
10. Hildreth, Gertrude, and Guy Wagner, "Putting the Know-How of Readability to Work," *Midland Schools*, 68:16-18, 42, 43, May, 1954.
11. Johnson, Ralph H., and Guy L. Bond, "Reading Ease of Commonly Used Tests," *Journal of Applied Psychology*, 34:319-324, October, 1950.
12. Klare, George R., "Measures of the Readability of Written Communication: An Evaluation," *Journal of Educational Psychology*, 43:385-399, November, 1952.
13. Major, Alexander, and Alfred T. Collette, "The Readability of College General Biology Textbooks," *Science Education*, 45:216-224, April, 1961.
14. Mallinson, George G., "The Readability of High School Science Texts," *The Science Teacher*, 38:253-256, November, 1951.

15. Mallinson, George G., Harold E. Sturm, and Lois M. Mallinson, "The Reading Difficulty of Textbooks for General Physical Science and Earth Science," *School Science and Mathematics*, 54:612-616, November, 1954.

16. Michaelis, John U., and Fred T. Tyler, "A Comparison of Reading Ability and Readability," *Journal of Educational Psychology*, 42:491-498, December, 1951.

17. Yoakam, Gerald, "Why Readability is a Problem for Teachers," *The Tenth Annual Conference on Reading*. Pittsburgh: University of Pittsburgh Press, 1954.

The Predictability of Omissions in Reading and Listening

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Colin Cherry put forth the view of language as a set of constraints, and theorizes that these constraints may be profitably categorized as operating at two levels of redundancy—semantic and syntactic. It is not difficult to grasp the idea of semantic redundancy as a repetition or association of the denotations and connotations of words. Syntactic redundancy is a more subtle concept. Cherry says, "Syntactic redundancy implies additions to a text; something more is said or written than is strictly necessary to convey the message." (1)

Researchers in the field of mechanical translation of language have made a similar dichotomy. For instance, Reifler says, "Understanding the import of a message . . . is either of a non-grammatical or of a grammatical nature," (2) Reifler thus finds a grammatical dimension of understanding. C. C. Fries asserts that an utterance is not understandable without both structural (or syntactic or grammatical meaning) and lexical (or semantic, non-grammatical meaning); yet he views these two categories as distinct. Fries states, "Certain types of analysis are possible without knowing the lexical meanings of words nor what the sentence is about." (3) Other investigators have found lexical elements to be relatively independent of the structural. Richens and Booth say, "Generally . . . in straightforward descriptive writing, the mere sequence of words, without any knowledge of syntax at all is sufficiently revealing." (4) Thus, there is wide agreement that there are two distinct elements in language, with certain styles of language demanding more or less of one element than another.

Rankin has shown that a noun-verb deletion using the cloze procedure removes more lexical meaning from a passage than structural meaning, and that an "every nth word" deletion reduces the structural meaning more than it reduces lexical meaning. Using the cloze procedure in this fashion it is possible to examine experimentally relationships between these two language categories. (5)

Weaver has shown that structural redundancy is significantly higher in the reading situation than in the listening situation, while lexical redundancy is similar in these situations. This relationship was obtained even though the subjects were allowed as many repeats of the materials listened to as they desired. (6) This implies that redundancy is not only a function of the language, but involves the characteristics of the various communication channels of the organism. A knowledge of the nature of this redundancy would seem to provide clues to basic information processing activities of the organism; certainly the observed differences in these redundancies raise interesting questions about the operation of human coding processes.

The total capacity of the human nervous system is enormous. Von Neuman estimated the nervous system contains 10 neurons. No computer conceived contains anywhere near this number of parts. Computers are constructed with maximum storage capacities of several million bits (one bit is the information contained in a binary decision—a yes or no answer to a question). This is far from the storage capacity of the human organism.

The capacity of the eye and ear as receptors is also quite large. Jacobson estimated the informational capacity of the eye tas 4,300,000 bits per second and the informational capacity of the ear as 10,000 bits per second. Although this means a 430-fold difference in the capacity of eye and ear, both receptors have a large capacity nevertheless. (7)

With such potential capacity, one is quite unprepared for the difference in the amount of information which is transmitted by the human organism. Quastler and Wulff estimated that the maximum rate of informational transmission of impromptu speech is about 26 bits per second. They also estimated a maximum silent reading processing rate of 44 bits per second. (8) It is the rare investigator who finds the human informational transmission rate higher than 50 bits per second.

One of the "bottle-necks", if such be a proper term, to more rapid information processing is the immediate memory. This is a very narrow gate through which we pass information to the enormous capacity of long-term memory. A relatively reliable cue to the mentally deficient is the inability of the individual to repeat a group of three or four digits immediately on hearing them. On the other hand, the brightest individuals rarely can repeat over nine digits correctly. The average immediate memory span for digits is seven and the limits of this ability tend to cluster closely around this figure—as Miller says, 7 plus or minus 2. Why such a restricted apperture for such a large reservoir?

Miller has shown that the retention of digits and letters of the alphabet is a function of the length of the material to be retained rather than its informational content. He also concluded that long-term memory processes are of the same nature as the immediate memory in regards to the characteristic unit to be processed—that is the storage capacity is determined by the length of the material to be retained in long-term memory. (9)

Using this approach one may view the immediate memory as a register on which is recorded an encoding problem. If we are to keep the material presented to the immediate memory it must be re-grouped, or as Miller says "chunked." This "chunking" operation is the task of our central processing and is a complexed, time-consuming operation which causes the time delay in transmission.

The findings of Miller raise other problems however. If language is constrained by length rather than by informational content, why must it be so redundant? Shannon has estimated that the English language is as much as 75% redundant (that is, the language could be written and spoken with only 25% of the symbols now in use). (10) We have input capacities measure in millions and thousands of bits, but this capacity can only be completely processes in tens of bits. If this system is not informationally controlled, would not redundancy act to increase the burden on central processing. The fact of redundancy in the language and in the sensory reception of it and the fact that length of the material, rather than informational richness, constrains retention arouses the idea that perhaps a reduction of redundancy occurs in the human coding operation. In a psychophysical context, H. B. Barlow has hypothesized that just such a phenomenon occurs. (11)

There is a rather large amount of evidence that lexical redundancy is tied to a relatively narrow context. Kaplan found that when subjects were presented contexts of different numbers of words and asked to identify nouns, verbs, and adjectives embedded in the context, "a context of one or two words on each side of the key word had an effectiveness not markedly different from that . . . when . . . the whole sentence . . . surrounded the word." (12) Structural elements on the other hand, are scattered throughout a message, implicit in its word order, tacked on to its lexical units, and coded into "lexical-appearing" units which defy denotation (e. g. "the"). Edward Sapir, for instance, found ten different syntactical relationships scattered throughout the simple sentence, "The farmer killing the duckling." (13) There are strong common sense grounds for assuming that an entire message is not stored. One does not reproduce previously received messages verbatim; in fact, the common characteristics of reproduced messages is that they contain idosyncracies of the transmitter, rather than being exact reproductions of the original input to the transmitter. It is as if one were dealing with two elemental units in the language situation; one the lexical, for storage and retention; the other structural, a plan for storage and retention. The more redundant elements of the language then would not be involved in storage; retention would involve lexical elements primarily which can be shown to consist of short contextual units.

It is possible to view the highly redundant structural element as the "program" for the individual's coding. That is, the reader or listener expects to hear or read and to process routinely in terms of this expectation. Unfamiliar structural elements would increase the central processing load because these elements could not be handled routinely. This would tend to decrease the rate of processing. Using another strategy, the individual might process unfamiliar structural elements rigidly in terms of his expectations introducing distortions. The reader as encoder has advantages over the listener because he has spacial and sequential cues; he has the ability and opportunity to repeat selectively; and he has the permanent structure of the language before him to compare to his own structuring. The listener may limit his structural processing to the relatively small complex of the lexical (as the cloze procedure seems to force him to do) in which case he would seem to miss widely-spaced contextual elements, but a strategy also seems plausible of coding large amounts of the context into informational rich "chunks" ignoring the details. The reader should be able to encode both if his internal structuring (i. e., the way he *produces* language sequences) is not inflexibly incompatible with the language he is receiving. Structural redundancy is needed then to decode messages and to encode messages because it "programs" the lexical elements not because it reduces the information burden. The idea of structure as a recoding plan would seem to fit hypotheses of Barlow concerning serial reduction of redundancy. Barlow makes the following points:

1. The coding out of redundancy lends itself to subdivision.
2. Small parts of the input, selected by spatial and temporal contiguity, may be dealt with in isolation then brought together for more complex forms of decoding.
3. If this coding were successful channel capacity would be reduced in the channel acting as input to the next stage.
4. This would be advantageous because the difficulty in selecting a code is related to the number of possible codes, which in turn is dependent upon channel capacity, not the amount of information the channel is carrying. (11)

It is interesting to note that this view is in accord with Miller's finding concerning the constraining effect of length. The channel capacity of immediate memory (or better for these purposes "immediate input") is small and this limits the coding rather than the amount of information involved. Reading, in the case of the proficient reader, generally allows better encoding than listening, because there is a better matching, in an engineering sense, of "immediate input" to central processing.

References

1. Cherry Colin, *On Human Communication.* New York: The Technology Press of Massachusetts Institute of Technology and John Wiley & Sons, 1957.
2. Reifler, Erwin, "The Mechanical Determination of Meaning." In William N. Locke and A. Donald Booth (Eds.), *Machine Translation of Languages.* New York: John Wiley & Sons, 1955.
3. Fries, C. C., *The Structure of English.* New York: Harcourt, Brace and Company, 1952.
4. Richens, R. H., and A. D. Booth, "Some Methods of Mechanized Translation." In William N. Locke and A. Donald Booth (Eds.), *Machine Translation of Languages.* New York: John Wiley & Sons, 1955.
5. Rankin, E. F., Jr., "An Evaluation of the Cloze Procedure as a Technique for Measuring Reading Comprehension." Unpublished Ph.D. dissertation. Ann Arbor, Michigan: University of Michigan.
6. Weaver, W. W., "An Examination of Some Differences in Oral and Written Language Using the Cloze Procedure." Unpublished Ed. D. dissertation. Athens, Georgia: University of Georgia.
7. Miller, G. A., "Human Memory and the Storage of Information." *IRE Transactions in Information Theory,* 1956, Vol. IT-2, No. 3, pp. 128-137.
8. Quastler, H., and V. J. Wulff, "Human Performance in Information Transmission." Part One: Simple Sequential Routinized Tasks. (Manuscript).

Quoted in Fred Attneave, *Applications of Information to Psychology*. New York: Henry Holt, 1959.

9. Jacobson, Homer, "The Informational Capacity of the Human Eye," *Science*, 113:463-471, 1951; and "Information and the Human Ear," *Journal of the Acoustical Society of America*, 23:463-476, 1951.
10. Shannon, C. E., "Prediction and Entropy of Printed English," *Bell System Technical Journal*, 30:50-64, 1951.
11. Barlow, H. B., "Possible Principles Underlying the Transformations of Sensory Messages," Rosenblith, Walter A. (Ed.), *Sensory Communication*. New York: John Wiley & Sons, 1961.
12. Kaplan, Abraham, "An Experimental Study of Ambiguity in Context." Mimeographed, 18 pp. November 30, 1950. Microfilm, Papers on Mechanical Translating, Roll 799. Cambridge, Massachusetts: Massachusetts Institute of Technology, 1950.
13. Sapir, Edward, *Language*, New York: Harcourt, Brace and Company, 1921, 1949.

The Volume, Interests and Tastes of Adult Readers

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According to the 1960 census figures, the population of the United States was 182,714,000 of which number 97.8% was classified as literate. Judged as a measure of the nation's intellectual maturity and independence, this figure should easily be the most significant fact derived from the entire census project.

While it is not the purpose of this discussion to take issue directly with the obviously liberal interpretation of the term literate as employed by the bureau for census purposes, one cannot but observe that the figure is practically useless as a measure of the intellectual maturity or of the reading activity of the population. The question arises: What can literacy mean apart from the ability to read? If one can be said to read but does not, an even greater enigma presents itself.

The purpose of this paper is to indicate how this peculiar American literacy has manifested itself in the volume, interests, and tastes of adult readers who, one must assume, represent the most mature segment of the populace and hence ought to provide the best indication of what purposes literacy has served in our society.

Actually, literacy represents a tremendous power as a means of achieving various social objectives of our way of life. According to Mortimer J. Adler (1), these should include its use as a tool for the realization of one's own individual potentialities, for knowing and understanding others and the society of which one is a part, and for achieving the good society as readers develop for themselves, through reading, their own concept of what constitutes the good society. It is all the more significant in a society wherein the individual is responsible for his share in making decisions affecting the character of his representative government because good reading is "intimately related to the art of good thinking, thinking clearly, critically and fully." (9)

In this sense, what reading ability affords the individual, literacy affords the nation. The intellectual growth or maturation of the individual in the process of education is derived in large measure from reading. Harry A. Overstreet has commented that the mature reader is "not one who has come to a certain level of achievement and stopped there", but one "whose linkages with life are constantly becoming stronger and richer because of his attitudes which are such as to encourage their growth rather than their stoppage." (8:43) It seems impossible to maintain this sort of growth if one were to stop reading upon leaving school.

The importance of good reading abilities in the general population has been stressed by H. R. Huse in his discussion of the reading needs of a democracy. In his opinion it is important not only that readers be able to grasp the meaning of what they read, but that they be able to translate it in terms of purpose, authority, and validity. (6)

In the light of these considerations, it is of more than academic interest to investigate the reading habits of the American public. In a sense the use of its literacy capacity should be a measure of the effectiveness of our educational system and an indication of what can be expected of our democratic system as civilization becomes increasingly complex and demanding on the maturity of the citizenry.

We produce millions of books each year, but who reads them? (Cf. 5:11) Which people select what kinds of reading material? Why do particular people select certain types of material? How much time do people actually devote to reading? What do most of the people read? What role does book reading play in our society? Answers to these and similar questions have become important factors in an evaluation of many problems we face today.

Fortunately numerous studies are devoted to the analysis of the many facets of the reading habits of adults. The great variety of these studies makes it necessary to adopt some sort of broad classification in order to coordinate the findings. Perhaps one of the simplest and most meaningful of such classifications is one which organizes the studies in terms of their orientation. There are three such vantage points. One is that of the social sciences taken collectively. When this type of approach is employed, the information collected tends to deal with behavioral and various intra-personal characteristics of readers. Such studies often attempt to coorelate some sort of reading behavior with certain combinations of demographic characteristics.

The public library approaches the study of reading habits from a second viewpoint. While the points of interest and methods of comparison often overlap with those of the first type of study, they do serve to identify peculiar reading idiosyncracies of smaller population groups. They have also been of value in providing information on the amount of time people spend in reading, the per capita registration with the library, frequency of library usage, and in a general way, the leading trends in literary taste.

The publishing industry itself has taken a third, very interesting approach to the investigation of the reading habits of the population. Of necessity many demographic and sociological contingencies which proved critical in both of the preceding types of studies have been investigated, but in addition, this avenue has produced much useful and interesting information relating to the sources of books which people read, the extent to which people own or collect libraries, the price they pay for their reading materials, and sales trends. All of these elements which serve the industry as predictive factors in publication, also provide a better understanding of the position reading holds in the lives of literate people.

Numerous efforts have been made to organize the findings of the hundreds of research projects conducted in this area. Some of the major studies of reading behavior of this type are themselves summaries of over a hundred research projects. A number of students in the field have been concerned with the problem of integrating all these findings with varying degress of success. (5:17)

Gray and Rogers (4) have perhaps been most successful in combining the numerous discrete descriptions of reading behavior because they refer these findings to a hypothetical character who personifies the focus of a given type of summary. The present discussion is organized along similar lines.

If one were to consider the typical adult reader in terms of age and sex, he would be found to be about 29 years old and female. (Cf. 3:47.) This average adult reads about one book a month, according to the findings of Link and Hopf (Cf. Table I)* who based their figures on total population percentages and interpreted active readers as those who have read a book within the past month. The librarian, however, would not find this average adult the greatest library user. Only 24% of the 21-29 year-old age group has used the library in the past year. (Cf. Table II)

Education seems to exert an important influence upon readership. Link and Hopf found that chances are three to one that a college graduate is an active reader. (Cf. Table III) Chances are fifty-fifty that he has used the library in the past year. (Cf. Table IV) The picture changes radically for those who only have high school training. The chances that a member of this educational group has used the library in the past year are only one in three. Chances of his having used the library in the past year if he has only a grade school education are one in ten.

Viewed as a wage earner the average adult is more likely to be an active book reader if he is in the upper thirty percent of the income distribution than if he is in the lower thirty percent. If his income is under $2,000 a year, chances are less than one in ten that he makes much use of the library at all. (Cf. Table V)

The time adults devote to reading has been investigated for three types of material: books, magazines, and newspapers. A college graduate averages some twenty-three minutes a day reading books. High school graduates spend only half this much time, about twelve minutes in this way each day, and a person with only a grade school education uses only a trifling four minutes of his day reading books. (Cf. 7:115)

College graduates spent about as much time with magazines as with books, but high school graduates spend almost twice as much time with magazines as with books. Elementary school graduates spend nearly three times as much time reading magazines as they do reading books. (Cf. 7:115.)

Education apparently has little effect on the amount of time a person spends with his daily paper. Whatever else television may have affected in American homes, it has not seriously altered adult newspaper reading habits. (Cf. 5:21.)

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*The Tables referred to will be found at the end of this paper.

What different groups of people read has also been the subject of intensive investigation. Generally, studies have indicated that the typical adult is likely to be a reader of light fiction, if he has only a high school education. (Cf. 7:71) If he attended college, his tastes lean a little more toward good modern or even classical fiction. (Cf. 7:71, 73f.) It comes as no surprise that the male prefers adventure and Westerns, while the female prefers love and romance. (Cf. 7:71-73f.) Persons with grade school educations seem to prefer books on adventure, mystery and religion; high school graduates prefer adventure; college graduates are more inclined to subjects such as war, social problems and history. (Cf. 7:71-73f.)

It is interesting to note the effect of geographical location on the reading habits of adults. More active readers live in the eastern and western states than in the midwestern and southern states. It would appear that better educational opportunities and greater wealth make for better use of the library as well. (Cf. 2:41; 7:85.)

Obviously, library services are not equally available to rural and urban areas; but where these opportunities are equal, the urban areas tend to make better use of these facilities.

However, a comparison of urban use of the library indicates that the smaller cities make better use of the library they have. (Cf. 2:42.) A greater proportion of the population in smaller cities registers with the library and there seems to be a greater per capita circulation.

There have been efforts to determine why people read what they do. One would assume that the most obvious reason for selecting a particular book would be personal interest, yet twenty-three percent of the people questioned in one study gave convenience as their primary reason for selection. Incredibly enough, only twenty-six percent listed personal interest as their motive for selection. Advertising and recommendation accounted for another twenty-four percent of book selections. (Cf. Table VI)

Some writers have attempted to identify some broad conceptual framework within which to interpret this bewildering reading behavior of adults. MacLean focused his attention on what he chose to call 'participation', feeling that the kinds of materials people voluntarily selected for reading purposes were largely determined by the reader's social role. A concept of 'cultural alertness' served as a guide to Berelson in his excellent studies on this topic. He hypothesized that certain people are more articulate in consequence of their greater sensitivity to their environment. Schramm's efforts to interpret the individual's reading behavior was oriented in the concept that the individual's own world largely determined the number and kinds of identifications he could make, and this governed his selection of reading material. (5:35f.)

All of these proposals seem to imply that a relationship exists between some personality syndrome which has been described in some broad way as social participation. It is apparently closely allied to the concept of social class structure as developed in the studies of Warner. A summary of adult reading habits viewed within such a framework would seem to have value.

The reader in the upper-middle class spends nearly twice as much time reading as does the lower-middle class person. He makes a great use of the public library, and an even greater use of private lending libraries, perhaps because of a tendency to avoid awaiting for specific materials. He also purchases more books for his personal library. The books he selects indicate exocentric tendencies and interests. The subjects he prefers include history, biography, war, social problems, and national affairs, all in keeping with established interests. His fiction preferences cluster around classics, both standard and contemporary. He has a taste for character novels. He will read an occasional detective story for relaxation.

Although the lower-middle class individual has a great respect for book reading, he does very little of it himself. Half of this group does not use the library as often as once a year. He never darkens the door of a private lending library. Because the size of this class is so large, it does exert a profound influence upon the character of the public library's circulation. Whenever members of this group do read they tend to select low grade fiction.

An interest in books and book reading is nearly completely absent among the lower classes. Chances are only one in twenty that a member of this class will use the public library as often as once a year. The odds are two to one that a given individual in this class have ever used the library at all. Half of the members of this class have never read a book in their lives and it is very likely that there will be no books at all in their homes, with the possible exception of the Bible which as often as not is not read.

The meager reading that is done in this class is restricted to detective stories, fantasy and adventure. The time they devote to book reading, as was mentioned, is only four minutes a day. (5:40-41)

The choice of magazines sets off the upper class from the others rather than its quantity. This group is likely to read Time, Harper's, National Geographic, Reader's Digest, and Atlantic. The uppermost members of the group often read Fortune or the New Yorker.

The lower class reads a much wider range of titles but it generally prefers the popular level magazines represented by such publications as Redbook, Etude, Woman's World, and Needlecraft. Gray and Rogers found that this group spends about as much time reading books as magazines, namely, some ten minutes a day as compared to twenty-six for the upper class. (5: 42-43) While this is comparable to the findings of others, as previously indicated, it more than doubles the amount of time the lower classes spend in book reading. Discrepancies of this sort are often accounted for by the fact that some studies exclude the Bible from book reading.

The newspaper is apparently read by all social classes. The inter-class distinctions arise from the reading preferences within the papers themselves. Upper class tend to have a greater interest in editorials, financial news; middle class has greater interest in crime news, disaster, and accidents as opposed to political and international news.

The middle class reader is more likely to read a single paper; the upper class reader, several. The lower class newspaper reader prefers sensationalism, sex, crime news, and banner headlines. He greatly values the sports section and is likely to read very little public affairs material. (5: 43-45)

Gray and Leary attempted to evaluate the ability of adults to intelligently comprehend what they read. They were able to reach these conclusions on the matter: The level of reading ability corresponds closely to the amount of schooling; the depth of comprehension also corresponds to the amount of schooling; and finally, the ultimate answer to such a question can be determined only through studies of the ability of particular individuals and groups who read different kinds of materials for different purposes. (4:87-88)

The average reader with an average education would probably read as well an an average eighth grade student, but his level of achievement would be modified upward or downward according to his intellectual ability, social class and his reading purpose.

The preceding discussion has attempted to consider the adult reading in the light of three general questions: Who reads what? Why do they read? How well do they succeed? Indications are that perhaps not more than 10% of the adult population voluntarily seeks any serious or challenging material at all; at least half of the population reads little more than the daily paper and a few mediocre periodicals. Their only contact with books is an occasional mystery story. It has been estimated that thirty to forty percent of all reading is limited to immediate,reward type material in preference to serious reading with only delayed reward. (5:45)

Because of the fractionalized view of the individual reader made necessary by a review of the tremendous amount of research done in the field, it seems almost impossible to relate the various types of behaviors and personal characteristics in a way that would provide a clear description of the average American adult reader.

Gray and Leary, after analyzing the available data formulated some tentative conclusions which represent as concise a summary as appears possible at this time:

1) Social role seems to be a basic determiner of the individual reading pattern and social participation seems to be a correlate of more and better reading.

2) The concept of social role represents a constellation of intellectual, emotional, and social characteristics.

3) Of all characteristics constituting the syndrome referred to as the "social role", and which are subject to measurement, education seems the best indication of the participation pattern.

4) Education also serves as a clue to the social role which is more nearly the determiner of one's reading pattern than education taken alone.

5) Education seems to form the foundation for various skills and interests. It may be viewed as a determiner of social role as well as its outcome. This dual relationship appears to make it useful as a guide to the study of reading behavior as a social phenomenon and a useful clue for predicting approximate levels of proficiency and maturity. (5:46)

In the light of conclusions such as these, and the findings of innumerable research projects it would appear more profitable for those interested in "Why Johnny Can't Read", to begin concerning themselves with "Why Daddy Doesn't Read". After all, by their own argument, Daddy was "taught right".

Bibliography

1. Adler, Mortimer J., *How to Read a Book: The Art of Getting a Liberal Education.* New York: Simon & Schuster, 1940.
2. Berelson, Bernard, *The Library's Public.* New York: Columbia University Press, 1949.
3. Campbell, Agnes, and Charles A. Metzner, *Public Use of the Library.* Ann Arbor, Michigan: Edwards Brothers, Inc., 1950.
4. Gray, William S., and Bernice E. Leary, *What Makes a Book Readable.* Chicago: University of Chicago Press, 1935.
5. Gray, William S., and Bernice Rogers, *Maturity in Reading.* Chicago: University of Chicago Press, 1956.
6. Huse, H. R., *The Illiteracy of the Literate:* New York: Appleton-Century-Crofts, 1933.
7. Link, Henry C., and Harry A. Hopf, *People and Books.* New York: Book Manufacturers' Institute, 1946.
8. Overstreet, H. A., *The Mature Mind.* New York: W. W. Norton Co., 1949.
9. Philbrick, F. A., Understanding English: *An Introduction to Semantics:* New York: MacMillan Co., 1942.

TABLE I
READERSHIP BY AGE GROUPS*

Readers	15-19	20-29	30-39	40-49	50-59	60-up	Total
Active	77%	59%	48%	45%	38%	39%	50%
Inactive	15%	22%	24%	24%	22%	17%	21%
Nonreaders	8%	19%	28%	31%	40%	44%	29%

*Adapted from (7:63)

TABLE II
RELATION OF USE OF PUBLIC LIBRARY TO AGE OF ADULTS*

Usage	21-29	30-44	45-59	60-up
During past year	24%	20%	14%	14%
Not in past year	49%	51%	42%	24%
Never used library	27%	29%	43%	59%
Not ascertained	**	**	1%	3%

*Adapted from (3:20)

**Less than 1%

TABLE III
READERSHIP BY EDUCATIONAL LEVEL*

Reader	Col.	H.S.	G.S.
Active	71%	51%	25%
Inactive	19%	24%	19%
Nonreaders	10%	25%	56%

*Adapted from (7:60)

TABLE IV
LIBRARY USAGE BY EDUCATIONAL LEVEL*

Library Usage	None or some G. S.	Completed G. S. or some H. S.	Completed High School	Some or completed College
During past year	6%	12%	32%	43%
Not in past year	41%	58%	62%	52%
Never used it	49%	29%	5%	5%
Not ascertained	4%	1%	1%	**

*Adapted from (3:24)

**Less than 1%

TABLE V

LIBRARY USAGE BY FAMILY INCOME*

	4,000 & over	$2,000-$3,999	$0-$1,999
Adult Population	25%	51%	24%
Library Users	41%	52%	7%
Frequent Users	33%	58%	9%

*Adapted from (3:25)

TABLE VI

REASONS FOR READING LAST BOOK*

Reason	Percent
Recommendation	10%
Advertising	14%
Interest in Subject	26%
Convenience	23%
Miscellaneous	3%
No reason given	3%

*Adapted from (7:10f)

Do College Students Read for Pleasure?

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This is a preliminary report on a readership study conducted at Mississippi Southern College in September 1961. It was concerned with the relationship of the amount of personal reading done by our students and various factors which might influence differences. Although the total population of the study numbers 1622 students who were enrolled in English classes during this period, the size of the sample being reported on at this time is 256. This, of course, is not an adequate sample of the total population, but unfortunately the remaining data have not been keyed for the IBM machine.

Related Literature

Evidence indicates that there is a wide variation in various parts of our country as far as the extent of reading books, magazines, and newspapers is concerned. It also indicates that there is a wide variation among countries of the world, and even among individuals in the same community. We can make certain generalizations about individuals notwithstanding the wide variation. We know, for instance, that adults with educational advantages read more than those with limited schooling. We know that the amount of reading, as reported by sociologists, varies according to occupational groups and socioeconomic levels. Members of professional groups, for instance, read twice as much as the groups engaged in clerical occupations, and about three times as much as those belonging to trade or labor groups. We know also that married people prefer to read more than unmarried individuals and men more than women. The older individual, it is said, reads more than the younger, too. (4) These figures relate to the general population, but what do we know about the reading of college students? Lester Asheim surveyed the research in this area for a volume called *Reading for Life* a few years ago. One of his statements, I believe, is pertinent to the problem at hand. He says:

> Numerous studies of the reading of college students have been made in the past 30 years. Despite the fact that they have been conducted at different points in time, in different segments of the academic year, in different kinds of schools,

> and for different levels within the academic program, the latest study almost invariably tends to support the findings of those that have gone before. And almost invariably too, when the latest findings are reported, librarians are shocked all over again. They are shocked because the amount of reading covered by objective studies usually appears to be nowhere near enough, although how much reading is enough, nobody really knows. (1:4)

Asheim discusses the number of books read, the sources of these books, the influence of reserve collections, the relationship between curriculum related and free choice reading, etc., as it is revealed by research in various places. I will leave this to your own reading except for one pertinent point. The evidence shows that students with high scholastic ratings tend to do more free reading than the student on the lower end of the scholastic scale. The lower individuals on the scholastic scale do quite a bit of the assigned reading but no personal reading. Perhaps this supports the hypothesis that the poor student is a slower reader and the good student finds the assigned reading comparatively dull. This pattern, however, is not foolproof. Sister Milania Grace's investigation of the recreational reading of 405 students showed that the 5 students with the lowest scholastic rating read more books than the 5 students with the highest scholastic rating, but the proportion of quality books was much lower with the poorer students. In this case the poorer students were neglecting their studies for a poor grade of recreational reading. (3)

Interestingly enough the optional reading of the men is significantly greater than that of the women, although the women do more required reading. Thus women seem to be more conscientious about assigned reading and less imaginative about selecting books on their own. Asheim's summary of research can be recommended to anyone interested in the reading of college students. It is part of a most interesting volume on the development of college students' lifetime reading interests which I recommend to you.

Faculty Studies and Promotion

There have been several studies dealing with the influence of the college faculties in developing reading interests for life. The American Association of University Professors Chapter of Southern Illinois University several years ago did three studies of book ownership among their students. Keeley (5) reported on the personal library of members of the senior class and found that most of the students in his sample of 137, or about 1/5 of the entire senior class, had started on their way to building worthwhile personal libraries. He said, "They own more books than we as faculty members realized." A few of the graduates, he said, are illiterate. Just exactly what he means by illiteracy is open to question. The quality and number of books owned by these senior students had a considerable range and variety and he believed that number and quality of books purchased would increase if the books were made more accessible. The revolution in paperback books, making many books available at relatively inexpensive prices, was held up as an important new development.

Newby (7) investigated the interest of faculty members in encouraging their students to buy books for their own use and ownership which are related to courses they teach. An overwhelming number of the faculty reported that they do make such an effort and, of course, the possibility of paperbound books related to courses taught in the university was also mentioned. Again there was a complaint that the availability of quality paperbound books in the community was less than desirable. The bookstore, for instance, buys only those titles required by instructors and a few College Outline books, math books, and titles from the Modern Library series.

Lawrence (6) reviewed a number of programs which encouraged book purchases. The first is the book store in the Student Union building which can carry a great many books of all kinds in addition to the text books. At several liberal arts colleges reading-room book shops have been established in the libraries. In each case the shop is a comfortable reading room stocked with a number of paperbound books. Students browse, choose the books they want, then pay into an open cash box on the honor system.

At Southern Illinois University is a collection of paperbound books which is open for inspection only. The library takes orders for any of these books and, unfortunately, there is a considerable time lapse between the placement of orders and the receipt of books.

At the University of North Carolina the Bullshead Bookshop has been an integral part of the University library for a quarter of a century. It is a rental library bookstore owned and operated by the University Library. This shop has an interesting history. It was begun as a shelf of current books in the office of an English professor, Howard Mumford Jones, who wanted to provide stimulating reading material for his students in an informal atmosphere. From this humble beginning came a non-profit bookstore which presently purchases its stock, pays salaries, wages of the manager and other employees from its receipts. The library provides space, heat, light, and janitorial service.

A summer session course at Sacramento State College has been entitled "Reading for Pleasure" and it has apparently been received very enthusiastically by students who read a book a week from a wide range of current fiction and non-fiction. The instructor of this course also has a television program on the same subject.

At Syracuse University there is an annual award given to the member of the senior class who can present the best private collection of books made by an undergraduate. This is somewhat selective, but it encourages those individuals who can afford to purchase books to do so. (8)

Franklin and Marshall College at Lancaster, Pennsylvania, has engaged in a Book-of-the-Semester plan for several years. Each semester one current book is chosen by a committee and during the semester lectures and discussions about the book are held on the campus. Whenever possible, the author is invited to speak, and related authorities are also encouraged to participate. (2)

The Present Study

Interest in the present study was stimulated by a Phi Eta Sigma (honorary fraternity) group who wanted to offer service to the college. These top students were concerned about the reading habits among their classmates, and it was decided that as a first step, we would find out whether students at Mississippi Southern College differed very much from students at other colleges and universities. The English Department was most cooperative although somewhat skeptical of the information which they finally collected. Unfortunately, there were two errors in the questionnaire which cost us dearly. We learned that one should never have more than one question on a line. The information about sex, for instance, was overlooked by exactly 50 percent of the first sample. (We feel that most of them knew the answer to this question.) Also overlooked for the same reason was the information about the expected degree—AB or BS.

What the study will do is compare the evidence that we have relating to the student's status and background with his reading habits. The college class that he is in, the school he is in within the college, his academic major, his age, his sex when we have it, his marital status, the size of his high school graduating class, the location of his high school, his father's occupation, the schooling of his mother and father, and whether he attended summer school last year will be the personable variables. With these we shall compare the evidence that we have about the group's reading habits to see whether there are any significant relationships. For instance, we asked: "Yesterday did you read a magazine? newspaper? book? or watch TV?" Then we would ask how long they had read this book yesterday. It will be interesting to see which groups will show greater tendencies to read than others.

We also asked whether they had read any books last summer. The pressures of school life presumably were missing during the summer. Of course, many of our students work and often have less opportunity to read in a summer job situation than they have on campus. Other variables to be compared with personal information were obtained by questions about book ownership, the number brought to college, the number of hard-back books and the number of paperbounds. We also inquired about book club membership and the use of the library.

A reliability check of sorts on the readership information was obtained by having the students name the books which they had read. We can only admit, however, that the information obtained in the questionnaire was what the students wanted to give us. Since these were anonymous questionnaires, since it was stressed that no grades were to be related to them, and since it was done very early in the school year, we think that the results were fairly reliable.

The Findings

Now for the evidence. Of our sample of 256 students, we found that 41 percent were freshmen with the attendant problems of inadequate knowledge of school organization which freshmen seem to have. Twenty-four percent were sophomores, 16 percent juniors, and 16 percent seniors. The small sample gave too little information about academic majors to be worth reporting. Suffice it to say that the spread was over almost the entire gamut of the 86 majors which we offer at Mississippi Southern College.

As far as age is concerned, 34 percent were 17 to 18 years old; 37 percent were 19 to 20; 15 percent were 21 to 22; almost 6 percent were 23 to 24; and 6 percent were over 24. The distribution of sex was almost equal with males covering 26 percent, females 23 percent, and the "no answers" 50 percent. Eighty-five percent of our people were unmarried and about 1/5 came from high schools with graduating classes numbering fewer than 50. Another 20 percent came from high schools with 50 to 100, and, surprisingly to us, 38 percent came from high schools with more than 200 members of the graduating class.

Two-thirds of our students came from Mississippi high schools with a number of them distributed among Alabama, Louisiana, and Florida, and 16 percent coming from other states, usually outside the Deep South.

It was with the father's occupational classification that we had a great deal of difficulty. With the help of a demographer who is the head of our sociology department, we established a nine-point scale for occupations which roughly included: (1) professional, (2) managers and proprietors, (3) those engaged in services, (4) those engaged in sales, (5) operators, foremen, and men engaged in a skilled trade, (6) those doing clerical work, (7) farm owners and operators, (8) other agricultural or extractive occupations, oil and lumbering, and (9) not stated or unclassifiable group. To obtain information about this, we were forced to ask a number of questions. We have found that if you just ask a student, "What does your father do?" the answer is very difficult to classify, so we asked a question: "What is your father's job?" The second part of the question was: "In what industry?" "Is he employed or self-employed?" "Does he supervise others?" "If yes, how many?" "If self-employed, does he employ others?" and "How many?" By examining all this information we could fairly adequately place the student's father in one of the nine categories. We were surprised to find only 3 1/2 per cent who were classified as farm owners or operators. Perhaps this is due to the fact that very often farmers have other means of supplementing their income which are considered the real occupations by their children. A large plantation owner is more manager and proprietor or executive handling two or three hundred employees than a farm owner-operator. We found that about 8 percent of our parents were professional, 20 percent managers and proprietors, 15 percent involved in services of one sort or another, 11 percent were in sales and about a quarter of the parents of our students were operators and foremen engaged in one of the other skilled trades. About 11 percent were not stated or classifiable. This included those who were deceased, those who just gave no answer to this particular question.

I shall pass over the information about the last grade attended by the mother and father. This will be most interesting when it is compared with the reading variables on a large scale.

The evidence relating to actual reading for this sample is rather interesting, even though comparison with all of the personal factors have not been made. Seventy-five per cent reported that they had read a newspaper for the previous day. Fifty-five percent reported that they had read a magazine, and 41 per cent reported that they had watched the TV program. Only 33 percent had read a book, and the modal time engaged in reading this book was about three-quarters of an hour to an hour. Eighty-six percent could recall the title of the last book they read for pleasure. It was interesting to note that they did not necessarily know how to spell the title of the book or the author. We have credit for an answer given, as long as it was readable.

Only 5 percent reported that they were book club members, although 13 percent used to belong but no longer do. Twenty-four percent borrow books often, 56 percent reported infrequently borrowing books from their friends and 19 percent reported that they had never borrowed books.

Sixty-four percent suggested the title of the next book that they might read, while the remainder did not.

The size of the personal library varied considerably, and it will be most interesting to compare these data with the occupational level and age. Forty-two percent reported a personal library which included only 1-20 books, 28 percent reported a library of 20-50 books; 13 percent from 50-100; 7 percent a library of 100-200 books, and 6 percent reported owning over 200 books of their own.

The number of books brought to college was relatively small. A great majority brought only from 1-5 hard-covered or paperback books to school. Some of them mentioned that they do not carry paperback books to college but instead have bought them at the college book store, drug stores, etc. Some of our students were commuters, and this accounts for a considerable number of the people who did not answer the question. If they were commuting every day they did not bring books to college at the beginning of the quarter.

Forty-six percent reported having read 1-5 books last summer; 16 percent 6-10, and 6 percent reported having read 25 books during the summer. It will be interesting to see what the personal characteristics of these individuals are. Seventeen percent, by the way, reported not having read any books during the past summer.

Rather disconcerting for our library staff is the fact that 10 percent of our people have never used the college library for pleasure reading. About 27 percent rarely use it, 25 percent have used it in the past, and only about 10 per cent use the college library for pleasure reading often. Since we do not have a browsing room, I believe that we do not encourage people to use our fine new library for pleasure reading. The books are there, but we have not made an effort to provide comfortable lounge chairs, smoking rooms, etc.

One complaint which we heard throughout the study was that the student has no time for pleasure reading. Nevertheless, some have made time, or at least tell us that they have had time to read many books.

In conclusion, this preliminary report of a study which will deal with 1622 college students' reading habits reports on only a small sample, 256. We obtained information of a personal nature about the student's academic position and interests, high school size and location, parental occupation and schooling. We expect to compare these personal considerations with their reading habits as stated in this questionnaire. It will be interesting to see what we find, and perhaps we can report on this next year.

References

1. Asheim, Lester, "A Survey of Recent Research". In Jacob M. Price (Ed.), *Reading for Life.* Ann Arbor, Michigan: University of Michigan Press, 1959. Chapter 1.
2. De Bolman, Frederick D. W., Jr., "What College Students Read: The College's Responsibility", *Saturday Review*, 69:50-51, November 18, 1961.
3. Grace, Sister Melania, "An Analysis of the Extra-Curricular Reading of College Women in Relation to Their Personality Traits and other Characteristics". Unpublished master's thesis. Chicago: University of Chicago, Graduate Library School, 1942.
4. Gray, William S., "The Sociology of Reading". *Encyclopedia of Educational Research.* New York: The Macmillan Company, 1960.
5. Keely, B. J., "The Personal Libraries of ISNU Seniors". *National Book Committee Quarterly* 3:1-2, Summer, 1959.
6. Lawrence, Margaret, "Some Programs That Encourage Book Purchases", *National Book Committee Quarterly*, 3:4-5, Summer, 1959.
7. Newby, Richard, "Faculty Influence Upon and Local Conditions Governing Student Ownership of Books at ISNU", *National Book Committee Quarterly*, 3:2-4, Summer, 1959.
8. Van Sinderen, Adrian, *The Best Indoor Game.* Syracuse, New York: The Syracuse University Press, 1957.

Personality Traits and Reading Disability: A Critique

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A relatively substantial professional effort has been expended in analyzing the interrelationships obtaining for personality characteristics and reading behavior. The bulk of this effort has been directed toward the identification of cause-effect relationships between personality malfunction and reading ability. Many of these studies have utilized designs which correlate specific trait performance on personality tests with reading performance, frequently that measured by a standardized group reading test. A few researchers have studied the adjustment and reading characteristics of select samples, such as reading clinic cases and juvenile delinquents. A small number of investigators have included personality and reading ability factors as segments of a multiple factor analysis of human behavior.

Current Generalizations

Contrary to the specific direction of much of this research, there has been little consensus concerning the relationships existing between particular personality traits and reading disability. Certainly, there has been little to support the hope of some reading personnel that this line of investigation will provide remedial or therapeutic implications of a finite nature. However, a number of generalizations, presented below, have accrued from the total effort of these investigations. As interpreted by authorities in the field of reading, some of these enjoy rather wide acceptance. (See references at end of this paper for generalization sources.)

1. Individuals with substantial reading disability exhibit, to varying degree, behavior symptomatic of emotional maladjustment. Among children, the more severe the personality disorganization, the greater the probability of reading disability. Likewise, the longer the child is frustrated by extreme learning difficulty, the greater the probability of generalized maladjustment.
2. Adjustment characteristics which may interfere with reading success are numerous. The most frequently identified patterns include anxiety produced perceptual-motor error and distraction, fear based upon withdrawal from challenging learning situations, and purposeful reading difficulty which satisfies the individual's power needs.

3. Maladjustment does not necessarily lead to reading failure. For some individuals, reading provides a therapeutic effect, and may lead to better adjustment. Furthermore, compensatory behavior may contribute to outstanding reading ability and scholarship.
4. Adjustment difficulties appear to exert their greatest negative influence upon reading performance during the preschool and initial learning-to-read periods.
5. After the individual has successfully learned to read, severe emotional difficulties are less likely to influence reading performance, per se. However, influence may be exerted in the form of transitional or situational reading disability, such as reading-study difficulty or inability to critically analyze emotionally charged materials.
6. The intense dislike of reading-language learning situations exhibited by many disabled readers, in itself, presents a problem of situational maladjustment.
7. There is evidence that severely retarded readers are inclined to exhibit overt hostility toward their peers and a reluctance to cooperate with adults, particularly, those viewed as authority figures.
8. Casualty is difficult to assign. Either personality or read ing disfunction may serve as the causal factor in a specific case. Both general and reading maladjustment may be produced by concomitant circumstances. Reading disability and emotional maladjustment frequently serve as mutually reinforcing agents.

Self-Concept and Reading Disability

The broad nature of these generalizations, notwithstanding, the hesitant hope continues among reading personnel that some research of the near future will reduce the bewildering jumble of present evidence to neat linear cause-effect relationships—relationships conducive to the development of specific corrective and preventative procedures. Hence, investigations of retarded reader performance on trait type personality tests continue unabated.

Neither this desire nor its research outlet seems realistic. To effect such a result, one must assume at least four questionable premises: (1) that the personality measures produce results consistent with a personality theory acceptable to the majority of educators and psychologists; (2) that such measures are mechanically reliable and valid; (3) that the disabled reader is a nonvariable entity; and (4) that two individuals will perceive environmental conditions in nearly the same manner.

Under the circumstances, efforts to relate specific personality traits to reading disability, while lending themselves to convenient research design, seem theoretically questionable. More seriously, they may be pedagogically obstructive, encouraging procrastination and defeatism in our dealings with maladjusted disabled readers.

A more realistic research direction, yet one which offers wider investigative potential, is that which views self-concept as the key to understanding behavior. It holds that human behavior, while complex, is internally consistent. This consistency is provided by the self-concept, the manner in which the individual perceives himself in a particular situation. With this viewpoint, reading adjustment becomes but one aspect of total adjustment.

While discussion of the "self" appeared as early as the philosophical writings of Kant and Schopenhauer, most of the limited research on the "self" has appeared since Allport's (1937) contributions. Illustrative "self" oriented research areas pertinent to reading disability include the influence of differential self-concept upon success with initial reading instruction, changes in self-concept as a result of initial failure in learning, differences in self-attitudes among parents of good and poor readers, emotional disturbance as a result of conflicted self-concept of reading ability, the influence of teacher self-concept upon pupil success in reading, the influence of self-concept upon perceptual efficiency, differential patterns of adult models among good and poor readers, extent of differentiated self-concept in poor readers, the relation of "poor reader" concept to instructional resistance, and the influence of self-concept change upon remedial progress. The possibilities, it can be seen, are intriguing and relatively unrestricted.

The strength of the self-concept approach to reading disability lies in its consonance with the accepted principle that human behavior is the purposeful product of motivations, resources, and environmental circumstances. It assumes, furthermore, that motivational forces, available resources, and behavioral setting are meaningful only as they are weighted and integrated through the self-perception of the reader. The "traits" oriented research assumes a lineal distribution of isolated personality variables, a lineal distribution of isolated reading ability, and a lineally distributed relationship between the two. The self oriented approach assumes that reading performance is the function of many factors and therefore must be analyzed in terms of multiple and curvilinear relationships. The self approach focuses observation upon the reader's perception of his behavior in both reading and nonreading situations.

Reading behavior consists of the reader's total reaction in varied reading circumstances. The self serves the dual role of selecting and unifying the behavior variables the reader will apply to the reading task, and also serves as the force which selects and integrates the influence of the reading circumstances upon immediate and subsequent motivation, resources, and setting.

Perhaps the most appealing aspect of the self-concept theory is the manner in which it harmonizes observed incongruities of reading behavior. It provides us with a means of intelligent pedagogical action while awaiting research clarification of the more finite elements. Through such an approach we begin to understand why some poor readers can exhibit no outstanding physical, emotional, and intellectual deficiencies while some good readers have several such deficiencies; why many poor readers are unable to accept the remedial program even when they recognize its value; how a pupil can analyze or recognize a word in isolation but, despite instruction, cannot do so in easy context; why good elementary readers can enjoy simple materials which poor readers consider insulting; why retarded readers will exhibit a weekly, sometimes daily, instructional level variance of four or five grades; and why "good basic" reading instruction frequently fails to remediate retarded readers. We can begin to make sense of why apparently successful adults with above average reading ability are willing to pay sizeable fees to increase reading quantity while resisting the free opportunities of the public library to improve the quality of their reading experiences. We see a glimmer of why college students will readily accept persistent concentration difficulty as a reading problem but not as a personal adjustment problem.

With this approach we may even begin to understand the sometimes confusing reaction to reading disability itself. We may find why reading teachers view remediation as requiring good instruction, psychologists view it as requiring good therapy (preferably their own approach), and why medical personnel try to cure it with pills and trampoline exercises. It enables us to understand, further, why the teacher, as she reteaches the child, is reluctant to accept poor teaching as a causal factor, but the therapy giving psychologist and drug dispensing doctor seem reasonably certain the problem is one of inadequate methodology.

Summary and Implications

The continuing efforts to relate isolated personality traits to reading disability fail to provide results which substantiate either the specificity of the theory or the practical value of the basic conception. A number of generalizations relating maladjustment and reading disability have been formed through authoritative interpretation of selected research and general observation of poor reader behavior. These generalizations suggest that it is more realistic to assess the interaction of personality and reading through the analysis of the total behavior of the reader.

A "holistic" approach to the poor reader enables the investigator to get at the functional significance of behavior. The purposes served by a particular response pattern occuring in a real life or lifelike situation became the foci of research. Furthermore, the poor reader is not seen as an instrument of circumstance which passively receives and mechanically acts out the combined fragmental influence of heredity and environment. Rather, he is viewed as dynamic and creative, who, like the good reader, selects from available motivational forces, personal resources, and environmental circumstances, those which can contribute to an action which will satisfy *his* goals. In this, the disabled reader acts consistently with his self-concept—his perception and reaction to who and what he is. Thus, we err when we assume that any reader's goals are our goals. We compound that error when we attempt to stretch those goals out on the sterile examination table of a personality traits test.

The implication for research is directly stated: Where no extreme physiological or experiental deficiency can account for reading disability or failure of remedial instruction, one must assume either that such behavior is purposeful or that it is the product of an undifferentiated self-concept. This makes research implications no simpler, but it does guide them into more realistic directions.

References

Axline, V. M., *Play Therapy.* Boston: Houghton Mifflin Co., 1947.

Bruner, J. S., "On Perceptual Readiness," *Psychological Review*, 64:123-52, March, 1957.

Burfield, L. M., "Emotional Problems of Poor Readers Among College Students," *Clinical Studies in Reading I.* Supplementary Educational Monographs, No. 68. Chicago: University of Chicago Press, 1949.

Dreikurs, Rudolf, "Emotional Predispositions to Reading Difficulties," *Archives of Pediatrics*, 71:339-53.

Ephron, B. C., *Emotional Difficulties in Reading.* New York: Julian Press, 1953.

Gates, A. I., "The Role of Personality Maladjustment in Reading Disability," *Journal of Genetic Psychology*, 59:77-83, September, 1941.

Jersild, A. T., *When Teachers Face Themselves.* New York: Bureau of Publications, Teachers College, Columbia University, 1955.

Young, R. A., "Case Studies in Reading Disability," *American Journal of Orthopsychiatry*, 8:230-54, April, 1938.

The TAT and Reading Disability

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A review of the literature shows a growing interest in the field of emotion and its influence upon the reading process. McDonald, Zolik and Byrne (4) report that none of the subjects in a reading class involving randomly selected students could be described as emotionally well adjusted according to the MMPI. These same people were found to have a strong need for abasement and deference and weak needs for achievement, autonomy and aggression. George Spache (5) in studying children (with reading disability) through the Rosenzweig Picture Test found significantly more overt hostility and aggressiveness toward others when compared to the norm group and less ability to acknowledge or accept blame.

Noel Jenkins concluded from a review of several studies on perception that "the weight of evidence favors the hypothesis that need is a deteriment of perception." (3) Zolkos, Robinson and Russell (4) seem to feel that emotional strain and reading disability tend to interact, adding stress to each other. Raines and Tait (4) concluded that reading retardation in many cases is an indication of emotional illness of the individual.

Pauline Vorhaus (6) in a Rorschach study of 300 children with marked reading disability found all withdrawn: one group had withdrawn the right of self assertion; a second group was exhibiting narcissistic preoccupation; a third was characterized by silent rebellion; and a fourth was withdrawn into an inferiority complex.

K. H. Hall (2) states that poor concentration and retention of subject matter are only indications of underlying problems. She also reported psychiatrists as saying that hostility and fear are the most important difficulties underlying reading problems. McDonald, Zolik, and Byrne (4) not only investigated "the personality constellations" of students in a college reading program for emotional problems but chose therapeutic techniques for the treatment.

Many investigators have recognized the problem of emotions and their effect on the reading process. The bulk of evidence presented by their studies argues that there is a relationship between the two. They tend to shy away from a cause and effect relationship.

The purpose of this study is to discover whether or not certain personality traits as identified by the Thematic Apperception Test are associated with reading disability. It is hypothesized that the TAT will identify certain needs in the poor reading group that would be characteristic of them as a group and differentiate them from the good reading group. Forty-eight good readers (students who were reading up to capacity) and fifty-three poor readers (students with reading disability) who were closely matched in intelligence (as per ACE) were given the TAT, and the results were compared. The 48 good readers will be called Group "A" and the 53 poor readers will be called Group "B". The statistical method employed was a nanalysis of variance.

Findings and Discussion

In Betty Aron's TAT manual, several kinds of traits or needs which the TAT purports to measure are listed. Only those which showed statistically significant differences between groups or for other reasons will be listed or discussed.

Analysis of variance shows the following needs or traits to differentiate at the one percent level between the two groups of readers, in favor of the "B" or poor, reading group: n Aggression (Physical), n Nurturance (Press), n Affiliation, and n Sentience (s-mt).

The need for physical aggression represents the basic need to express hostility. It is interesting to note that the need aggression was expressed an equal number of times, 40, in each group, but when it came to a specific kind of expression (physical) the difference became statistically significant.

Another remarkable difference between the two groups is that Group "B" expressed their aggression not only more often but with greater intensity and amplitude than the stimulus situation would justify. The following is an example taken from the paper of a student in Group "B".

> Don has always been a tempermental, hard-hearted boy, but no one suspected that it would soon be his downfall. His parents thought he would soon grow out of it; therefore, they pampered him enormously. However, the day

> he slapped his sister, his dad became very angered and sent him to his room, with punishment soon to follow. Don flew into emotional rage in his room and pulled out his rifle. As his dad came into the room, blinded by his emotions, he fired. His dad was hit in the side, and he realized what he had done. His dad went to the hospital, but Don was sent to a psychiatrist, where he is still under treatment.

Compare this story to one written by a member of the good reading group:

> The four men had finally found a hiding place, a room in a closed factory. Ernest had, unfortunately been hit. The four men were revolutionists in Hungary, and were fighting for their country's freedom. Although they knew that their chances for victory were very slim, they fought with courage and determination.

These two stories are responses to the same picture. One is a violent expression of aggression while the latter is suitable to the situation and follows a mode that is acceptable to society—revolution to gain freedom. This example shows better ego functioning.

Press nurturance is defined by Betty Aron (1) as "Someone nourishes, encourages, protects or cares for the hero. He receives sympathy, consolation, pity." Subjects in group "B" have this need to a much greater extent than do Group "A" subjects. Group "A" subjects undoubtedly can keep up their motivation, cope with their problems without feeling need of encouragement from others. It's as if the poor reader needs this sort of help to bolster his confidence. One could raise the question of latent development or, better still, is this something he missed when young?

Need affiliation is listed under the heading seeking quality of status and is defined as "The hero establishes or maintains friendly relations with a person or a group of people." (1) This probably means no more than a need to belong. Group "A" people probably already belong and do not mention it as often in their stories.

Mental sentience is listed under sensory aspects of behavioral trends. It is defined thusly; "The hero thinks, reflects, mentally speculates. He studies, he attempts to understand ideas presented. He muses, mulls over an idea." (1) Group "B" subjects probably do not trust their perceptions when first exposed to a stimulus and are hesitant to take a course of action. It's as if they do not have confidence in their own judgment; like they are not sure they have recognized all the elements in the situation nor have a complete grasp of it.

The poor readers were consistently higher in the number of needs expressed, perhaps indicating that they do not know how to meet their needs in a socially aproved way; perhaps because they can't communicate as well as their colleagues who read well.

Further Discussion

There are some aspects of this study that do not lend themselves to statistical treatment, but which would strike any reader who would read the stories as being important. Impressions of the home adjustment of the two groups from their stories is as follows. Much of the time subjects in Group "B" fail to place their parents in their proper role and see them only as dominant forces that they must obey. Obedience means that their amusement must be curtailed. The mother is usually described as the dominant force while the father is used as the object of physical aggression. Girls describe mothers as interfering with their plans and desires. Boys feel resentment towards their fathers for unexplained reasons. Perhaps it can best be explained as a result of the working of the typical American family organization. The mother is usually the one to whom the disciplining of the children is assigned, but the father is the real authority. Mutual family affection is seldom mentioned by the students in this group. The following is a very good example of some of what has just been said:

> I think that this boy was outside playing when his mother forced him to come in the house and practice the violin. In the picture the boy is sobbing over the fact that his friends are out playing. I think that if his mother finds him not practicing, she will send him to bed with no supper. This certainly will cause the boy to get even madder and 'throw a fit'. The boy in the future will probably again try to avoid the lessons and again the same scene will take place the next time that he is supposed to practice.

The stories of Group "B" follow this general pattern. Not always does the boy get mad and "throw a fit" but he, almost without exception, complies with the dominant force with only a mild form of rebellion indicated.

Both groups are striving to gain autonomy but the students in Group "B" seem to be the less successful, and the above story can again be used to illustrate this. The child in the story above is trying in his small way to become independent, but it is readily apparent that he is not too successful when he complies with the wishes of others. In contrast is the following story of a student in Group "A" who, although picturing the mother as the dominant force, is able to include in the story the implication that mothers do these things for one's own good:

> The picture depicts a boy who has been contemplating taking violin lessons. His story is as follows. His mother told him that she thought violin lessons would be an outlet for boyish pranks. Hhe would be spending more time constructively and less time loafing. The boy had very much to say about his mother's wishes, and thinking of the neighborhood fishing hole. His mother finally persuaded him to take lessons and he found that he became interested after a few years of studying. He went on to become an accomplished violinist.

The members of Group "A" see themselves as successful more often than do the members of Group "B" as is reflected in their stories. While most of the outcomes of the stories of Group "A" end in much the same way as the above story, those of Group "B" are filled with feelings of inferiority and failure. The following is a rather fragmentary story given to the same picture by an individual group "B".

> Thinking about his failure with the violin has given up hope.

This feeling of failure and of a subsequent giving up is typical of the "B" Group.

In their relationships with other people Group "A" seems well oriented. They place all their characters in suitable surroundings as limited by the picture, and the majority of them name their characters making them seem more realistic and alive. They are able to adjust to new situations which was shown by the way they handled the primeval picture that was included in the series. Members of Group "B" are hopelessly confused by this picture and resort to a mere description or simply leave it blank. This picture was also a good index to how the student regarded his place in society. On the whole, both groups found the outside world full of danger and a precarious place to be. A possible explanation of this might be the present world situation, for approximately the same number in both groups used this story to describe the annihilation of the world by atomic explosion in which all was destroyed but a few deformed animals.

The members of Group "B" are afraid of humiliation, shame, failure, and ridicule. They are much more sensitive about the possibility of rejection and a loss of esteem among their peers than are the members of Group "A". They try to protect themselves from rejection by refraining from anything that would possibly result in such, by deceit, denial, flight, or secrecy. As regards the supergo and ego ideal of this group, again we find that the members of Group "A" look better adjusted in that they resort to the use of defense mechanism fewer times.

Group "B" is distinguished by having difficulty in making up their minds. They see several alternatives as solutions to a problem, but they seem unable to pick that one which would suit the sutuation and the characters best. This is supported by the way in which they present their stories. Instead of stating one story, they present several and leave it to the grader to make the decision. Often the two alternatives presented are at opposite poles to each other.

In connection with their relationships with members of both sexes, the members of Group "B" have the main character in their stories expressing affection for members of their immediate family and their peers but present little evidence of this being returned. In their relationships with members of the opposite sex, Group "B" is still in the pre-adolescent stages of having crushes on others. The marriages that they mention are seldom happy ones and most of the time love is not returned, fidelity is not maintained, and divorces are frequent. The following is a typical marriage scene:

> The woman has just found her man with another woman. He wants the other woman instead of her. He is trying to get out of her grasp so he can return to the woman he desires. He will go to the woman he wants as seen by his eyes and her reflection in the mirror.

This type of description of marriages to some extent however, is typical of both groups. Group "A" does mention more success in love and family relationships than does Group "B". We find that the family relationship is the most frequently missing item in the Group "B" stories. There is very little closeness and mutual affection. A typical family relationship of Group "A" is as follows:

> The father of a family of two children, a boy and girl, dies and leaves the mother and children to make their living on a farm. The girl is being sent to school while the son is kept from school to keep the farm going. The girl is wondering whether or not she is being selfish in going to school to study in books while she could be helping at home. The mother is very persuasive in showing the girl that education will help her more than the working around home would. The mother cannot send the son though, because he is needed on the farm. The girl goes to school. After graduating from high school she gets a good job and buys her mother and brother a nice home in town. The brother learns how to read and write enough to work as a blacksmith.

Mutual family affection if evidenced here for all members are willing to work to help one another. In contrast is this story by a member of Group "B".

> She has had an argument with her parents as to whether she should go to school or stay home and do chores. She has decided against her parents wishes and go to school. As she leaves she turns to see if her parents are watching her. They aren't. She will later jilt her boyfriend and become an old maid schoolteacher.

In this story we find conflict in a family scene. Many times this picture which is structured to elicit a family response will be changed by this group to portray a symbolic scene of the farm and education while on other occasions a response such as the following is given.

> This girl is passing by her boyfriend's place on the way home from school. Because of the strictness of his mother, she is afraid to speak to him. This boy is not dumb because of the fact of his mother ruling over him, but he lets he just so it will not break her heart to realize he is a grown man. The girl is looking at his mother with hate in her eyes and saying to herself that if his mother hits him with the whip again she would kill the mother. She

> hits him again and the girl runs over and hits the mother in the head and kills her. The boy, loving the mother very much, killed the girl and then committed suicide

This story reveals several characteristics about the members of of Group "B". They have a very real conflict with authority. They see parents as interfering in their lives and would like to destroy them just as the girl does in this situation. We are again faced with the heterosexual relationship. This is an immature relationship and one that is not mutual. This is especially characteristic of this group.

Group A has well-outlined that they are striving to obtain and see themselves as successful with work. They are realistic enough to see that the going may be rough, but do not see things as impossible. This story serves as an example of the case in point:

> The boy had been practicing his violin with the music under the instrument. The boy has just finished his lesson and is wondering if he will ever be able to play Mendellson or some of the other composers great works. The boy is day-dreaming a little as he can see himself some-day playing some fast airy passages from great composer's works. The boy will follow the typical dream-come-true story of a person who finally has his dream come true.

An example has already been given of the failure and defeat of those in Group "B". This characterizes the entire group. While they desire to be successful, they are unable to make decisions about their futures. They do things by impulse. The way seems to be too rough for them to survive and to attain any goals that they may have.

In summary it can be said that the people who have proven themselves to be reading up to their abilities are characterized by an adjustment to their surroundings, realism in their aspirations and an ability to use aggression to rid them of tensions. This aggression is suited to the occasion and is usually not passive.

The group that was composed of the poorer readers is less well-adjusted to their surroundings, feels a definite lack of affection both from their families and from their peers and members of the opposite sex. They feel that they are inadequate and that they may fail at most things they attempt. They express their aggression passively and when overt action is taken, it is completely unsuited to the situation. They are on the whole more inhibited, gloomy, and stereotyped than those who have little difficulty in reading.

References

1. Aron, Betty, *A Manual for Analysis of the Thematic Apperception Test.* Berg, 1949. Pp. 34-37.
2. Hall, Kathryn H., "The Emotional Factor in Education", *Education,* 79-583-585, May, 1959.
3. Jenkins, Noel, "Affective Processes in Perception," *Psychological Bulletin,* 54:100-127, March, 1957.
4. McDonald, Arthur S., Edwin S. Zolik, and James A. Byrne, "Reading Deficiencies and Personality Factors: A Comprehensive Treatment". In Oscar S. Causey and William Eller (Eds.), *Eighth Yearbook of the National Reading Conference.* Fort Worth, Texas, 1959. Texas Christian University Press, 1959.. Pp. 89-98.
5. Spache, George, "Personality Patterns of Retarded Readers," *Journal of Educational Research,* 50:461-469, February, 1957.
6. Vorhaus, Pauline, "Personality Seen in Children with Reading Problems and in Adults with Corresponding Problems," *National Association of Women Deans and Counselors Journal,* 24:104-105, January, 1961.

1961 Review of Research on College-Adult Reading

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For the most part, the articles and reports treated in this year's review are ones which have appeared in the periodical literature since the review for last year's Conference (7) was prepared. Since the appearance of the last review, the first summary of a purported series of annual critical summaries of some selected significant research relevant to college-adult reading has appeareared. (70) Summers (82) also presented his comprehensive compilation of doctorial theses on college reading completed during the years 1919-1960. Sixty-one pertinent dissertations were listed. Summers called attention to the greatly increased evidences of dissertations in the area of college reading during the last ten years. Several broad headings, similar to ones used in the past, have again been used for purposes of treating various reports. As will be noted, it was possible this year to treat the great majority of items under the first three areas or headings.

Reading Programs (Reports, Surveys and Analyses)

Colvin (17) has presented a brief summary of some of the pertinent data gathered in his study (doctoral dissertation) of various college reading programs in Pennsylvania. Acker (2) again presented a report of his survey of reading programs in military, government, and business agencies. His earlier report, in another source, was treated in last year's review (7:150). Shaw (74) reported at this Conference last year the results of his rather extensive questionnaire study of practices relative to college reading programs. Responses were obtained from 350 of the 505 colleges and universities to which questionnaires had been sent. Current offerings relative to reading improvement programs were reported by 242 of the 350 respondents.

A number of references cited for purposes of this review contain reports or discussions, in varying degrees, of specific reading improvement programs. (17; 22; 31; 37; 38; 41; 42; 44; 47; 61; 65; 71; 88; 89; 90) Some of these reports were made for a major purpose other than the one of describing a program or the results of a program; and, in some cases, rather indirect indications of effectiveness or results were given. As in previous years, some reports contained specific information as to particular evaluation procedures used; some gave only indirect indication of these types of procedures; and some merely included statements indicating that a program had been effective. Gains in reading speed (as judged by test scores) were indicated for some programs; gains in comprehension (indicated by test scores) were indicated for a number; gains in both speed and comprehension were indicated for some; and still others reportedly had gains in speed but not in comprehension. A loss in test comprehension scores was reported for one program (41). Haridison (41) obtained indications of significant rate and comprehension gains in a program where the *Iowa Silent Reading Test* was administered in the regular or standard way. However, when the tests were given in a modified way so that the rate of reading and percentage of comprehension might be evaluated separately, a loss in percentage of comprehension was found. Students participating in the reading program for freshmen at St. Francis College were reported as nearly always showing "astonishing, sometimes unbeliveably large gains"; and retention of gains was reportedly considerable even after one, two, or three years. (31)

Ziemann (90) made a study of 85 selected schools with respect to their "communication" courses. The course in each of the schools involved at least speaking and two other communication arts. Ziemann found, among a number of other things, that English Departments were usually in charge, that English and Speech instructors taught most of the courses, that courses were usually a year in length, that reading and writing received more emphasis than listening and speaking, that several books (rather than one book) were used as texts for the course, and that such courses were usually offered during the freshman year.

Mains and Collins (57) reported a program with Junior College freshmen in which no machines were used. *Cooperative English Test*, Cc, score gains were found to be nonsignificant; but *Iowa Silent Reading Test* score gains were statistically significant. Hampton (38) reported a program of twelve sessions which involved industrial personnel, with individual attendance at different sessions varying considerably. Hampton described the program as a "gunshot course"; and he reported that definite gains in reading rate, but not in comprehension, were made.

Several investigations made were related to the influence of help given in college reading programs upon grades or scholastic achievement. Gunderson (37) found that benefits from reading instruction or gains in reading skill were most pertinent to success in courses such as religion, history, sociology, English, and chemistry. Men appeared to be helped more than women; poor readers more than good readers. Wright (89), in his study involving three hundred male and female freshmen, found that the course required of the selected college freshmen did seem to help students in verbal courses and in their reading. Hinton (44) noted some improvement in grade points of a reading improvement group, while the mean grade point average of a group of honor students decreased. Hinton further found that the dropout rate of both the reading improvement group and the honors group was less than the national average.

Wood (88) used attrition or amount of dropout as a criterion of the effectiveness of reading improvement programs. Specifically, he studied the effect of personality characteristics and variables of the instructional situation upon attrition or dropout in reading programs. His findings did not support the contention of association of personality characteristics and/or variables of the instructional situation with attrition or dropout. Wright (89) found that the reading program did not have any apparent effect on the persistence in college of the three-hundred freshmen involved in his study.

Mattila (61), investigating whether an orientation program in which emphasis was placed upon development of basic communication skills would be more effective than a current or typical orientation program for freshmen in helping freshmen attain satisfactory academic adjustments, found no statistically significant differences between experimental and control groups in reading improvement, listening, or academic achievement. He noted, however, that fewer students dropped out of the usual program than dropped out of the "new" program.

Heftel (42) found that 24 students in a reading improvement program at the Chicago Undergraduate Division of the University of Illinois doubled and tripled in reading speed. He further found that those who were initially the fastest readers made the biggest rate gains. Shiavone and Camacho (71) discussed a reading improvement course offered on a Miami television channel for Dade County Junior College. The course, which permitted three semester hours of credit, was designed for average and better-than-average readers. General reactions of students to the program and its results were reported as being very favorable. Convenience was felt to be the biggest advantage of the program. Dobin (22) described a pre-college program for college-bound juniors and seniors. She reported an average gain, during a semester, of "fifty points" (Iowa and Cooperative tests). Comparisons of May, 1959, and January, 1960, *Cooperative Test* scores indicated definite gains had been accomplished.

Factors Influencing Reading and Study Skills

A discussion and description of two cases (one a college student) with a syndrome labeled "reading epilesy" was presented by Baxter and Bailey (6). Casey and Epplinger (13) found that some adult cases, in which there was apparently some type of malfunctioning of the brain, had more severe problems with reading than they did with spoken speech.

Drake (24) found urbanization to have an "attrition" effect upon regional vocabulary. Hinze (45) found that some words evoke certain kinds of responses in individuals which then interfere with the ability to analyze objectively that which is being read. "Conflict" words were found to have a positive causal relationship relative to misinterpretation. Word associations were found to interfere with objective analysis and interpretation of prose. "Affective" material was found to be misinterpreted more readily as a result of emotional conflict or attitudinal set than because of inadequate understanding of intellectual content (45). Volunteer applicants as a state employment agency were given two multiple choice vocabulary tests. There was a tendency for higher scores to be obtained by those with a greater amount of education. Newton (65) did a case study of ten of the most severely retarded readers in a Bennet College reading program. There were found to be indications of influence on verbal skill of section of the country on the verbal, socio-economic family background, limited cultural experiences, small high schools, rural background, and poor and limited language patterns of adults in the environment.

Coleman and Kim (16) tried five styles of typography on a group of untrained subjects. The investigators found that in the higher situation in which long passages are read subjects were not able to suppress established reading habits; and the conventional arrangement of material was read significantly faster than was the vertical arrangement. When materials were presented tachistoscopically, however, vertical, spaced, and square-span styles of typography were all significantly superior to conventional typography. In a study in which the legibility of printed numerals was investigated (27), it was concluded that a font with closed resemblance to familiar arabic numerals should be used when numerals are to be identified with a minimum of learning and under favorable conditions of presentation.

In another study, "non-compulsive" readers were found to read better than "compulsive" readers, with the average grade of the "non-compulsive" readers (among a group of freshman engineers) to be more predictable. (30) Another pair of investigators (51) found significant influences upon recalling or memory of material when readers found materials personally significant or ones in which there was ego involvement. Manis and Dawes (59) found cloze scores of subjects to be affected positively when materials used with subjects were such that there was personal positive involvement or identification. Schneyer (72), in his study of University of Pennsylvania students who indicated concentration difficulty as a pressing problem, found three categories of problems; inability to concentrate because of tension and anxieties arising from an internal personal conflict, deficiencies in various reading and study skills, and low reading speed.

Dolye (23) found that reading comprehension scores of junior college freshmen increased significantly as readability of such passages increased. Bryant and Barry (10) concluded on the basis of their study that reading rate and comprehension, on relatively simple narrative-type material, was not affected significantly by interest.

MacGintie (54), in a "cloze-type" study, found the influence of context upon word choice to decrease rapidly with distance from context, with context more than five or more words distant having relatively little effect. In her study of the influence of a reading improvement program upon the grades of college students, Gunderson (37) found a reading course to be particularly helpful to those students possessing high intellectual ability and low reading ability. Stewart (79) found a positive relationship between "logic test" scores and reading comprehension and verbal ability test scores. Torrance and Harmon (86) found that students who were reading graduate level course reading assignments with a particular "set" (specific directions on how to recall) did the best on that part of the weekly test over the reading which related to the set for that week. By the end of the third week all of the three groups involved were doing better work with all sets. McCord (55) found, on the basis of subjective and clinical evaluations, than an appreciable number of students in an adult reading program were convinced that the playing of background music had helped them to read better. No objective measures of gains in reading skill were provided (55).

A library use survey conducted at Miami University (Ohio) indicated that, in general, students read little or much in view of how much they "had to" read rather than in view of how much independent reading they did. Independence in reading generally went unrewarded in terms of grades. (87)

Reading Habits, Traits and Characteristics

A considerable number of surveys of books and magazines read by various types of groups was reported during the past year. Several studies of time, or proportions of time, spent in reading various types of material were also conducted. The percentage increase in dollar volume of sales of books from 1952 through 1960 was shown in a report by *Publishers' Weekly.* (1) While the increase in hardbound adult trade books was a little over 60%, the increase in paperbound adult trade books was almost 800%. The frequency with which books were read and the quality of magazine reading of groups of college graduates was investigated by Brown. (9) It was also reported that the average American spent approximately one-third of one cent of each dollar earned on books in 1953, but that in 1960 approximately one-half cent of every dollar was so spent. (20)

Fortenberry (29) reported on the magazine and newspaper reading habits of 282 incoming freshmen at Hinds Junior College. Responses to questionnaire items showed an average of 25.8 minutes a day was spent in reading newspapers. The order of preference with magazines read for out-of-school purpuoses was as follows: *Life, Look, Saturday Evening Post,* and *Reader's Digest.* Parts of newspapers preferred were (in order) local news columnists, sports, and current affairs. Grabowski (34) concluded that in a group of 385 teachers interested in current events as evidenced by the "considerable time" devoted to the reading of newspapers and news magazines, no specific patterns in book preference were noted. (34) Approximately 60 per cent of the 200 persons sixty years of age or older involved in a study by Hoar (46;47) reported that they spent no time on the average weekday in reading books. Forty-eight out of 66 men and 66 out of 134 women said they had read no books in the previous six months. One book was the modal number of books for those who had read. Education apparently had a stronger effect upon book reading than did age. Among women, reading was most often listed first as a free-time activity. Among men in their sixties, reading was not given much mention. In the group of seventy-year-olds, reading was listed fourth; and in the eighty-year-old group reading was second only to "loafing".

A survey conducted at Ohio State University to find out, in part, the students' three favorite books revealed that a sizeable number of students could not name three books they recalled reading with pleasure. (50) It was concluded that very few students felt incentives to read good books on their own. McDonald's extensive study of book and magazine reading habits of college students and urban area adults was reported at this conference last year. (56) McDonald found about the same proportions of book and magazine reading reported as had been the case in earlier (1958) studies. He concluded, therefore, that the proportion of adults who read had been neither decreased nor increased by television.

A survey of reading habits and performance in France (19) indicated that 42 per cent of the population are book readers, that the majority of book readers are between the ages of 20 and 37, that 5 per cent of the book readers read more than 15 books in the four months of the survey period, that 26% are book purchasers and spend from $6 to $40 a year on books, that a number of the survey population belonged to book clubs, and that many school libraries are criticized for their narrow selection (often being confined to classic drama) and overly serious titles. In a study conducted by the American Cancer Society among approximately six-hundred physicians it was found that half of the physicians spent at least five hours a week reading medical journals; practically all read at least one journal; the *Journal of the American Medical Society* was the most-often-read journal for the group, with *Ca*, the official journal of the society being the second-best-read journal. (64)

Taylor (84), in his studies of students in various teachers' colleges, found students in mixed (coed) colleges borrowing more books from the college library than did students in either women's or men's colleges; students in women's colleges were found to borrow more books from the library than were the students from men's colleges.

Reading habits and preferences of business executives were the topics of study in a number of investigations. Some of the findings yielded in Bursk's extensive questionnaire survey of reading habits of top executives (11) were that an average of 8 1/2 publications for business purposes are read by the top executives (3 1/2 magazines, 1 1/2 newspapers, 1 news service, 2 1/2 trade journals); the amount of reading a top executive is required to do increases with the level of the position held and the size of the industry; older executives tend to read less; *Fortune, Newsweek*, and *Time* reach approximately three-fourths of the total top-executive group, as do also *Business Week, Harvard Business Review*, and *U. S. News and World Report*. Neilander (63) also conducted a study of reading habits of executives. Some of the same journals as were listed in the Bursk survey were listed in the Neilander study. Responses obtained by Singer (76) in his survey of management personnel indicated that "management development" was the more preferred type of article and "advertising" was the least preferred. Strong (79) also obtained extensive information concerning the reading of executives in management positions.

Anderson (4) reported finding definite positive correlation between *Cooperative Reading Test* scores of 415 University of Western Australia freshmen and scores on the *Cattell 16 Personality Factor Questionnaire*. The personality traits of the "good" reader were indicated as including "measured introversion, emotional sensitivity, self-sufficiency, and, to a lesser extent, radicalism and low super-ego strength" (4:234). A questionnaire survey of several Catholic colleges (5) revealed that students desired out-of-class course work because of the aid such offered in achieving high standards of work. Assignments were preferred at the beginning of a course, with the instructor checking persistently on assignments, and with the time to be devoted to

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assignments being left to the students. Chapter assignments in many good texts as well as in a good primary source were also preferred. Results obtained by Swanson (83) in his follow-up study of high-school graduates of high ability indicated that those with more education (after high-school) consistently presented a more favorable picture with respect to reading of newspapers current affairs, better magazines, fiction and non-fiction, and use of the library.

In a study 1500 teachers evaluated as to "unemployability", 14 failed the verbal part of the fundamental skills test, and 16 had participated in remedial reading-writing courses. (28) A follow-up study of a group of classroom teachers who had all been tested by the Air Force in 1943 revealed that those who had left public school teaching since that time had been significantly superior to those who were still classroom teachers with respect to reading comprehension test scores. (52)

Information gathered in a study conducted by Cantrell (12) tended to refute the notion of narrow literary culture of antebellum period Southerners. Miller (62) found athletes who had achieved championship status to be likely to possess visual perception abilities superior to those who have lesser gross motor skill abilities. Hardy (42) found, in a follow-up study of Stillman College graduates, that the types of reading materials that predominated for the graduates were pictorials, cheaper novels, weeklies, and dailies, with fiction predominating, even though the majority had a variety of reading material available. The chief leisure time activities for most were watching television, attending movies, and sports events, and listening to radio programs.

Popham (67) found that over-achievers and under-achievers could be predicted on the basis of *Brown-Holtzmen Survey of Study Habits and Attitudes* scores. The purposeful reading of science materials by scientists has been compared with the purposeful reading of such materials by sixth-grade children. (69; 75) Similiarities and differences in the reading of the two groups were noted by the investigators. A series of public-service-type advertisements sponsored by the International Paper Company (73) has purportedly involved studies of the reading habits of various groups such as scholarship winning high-school seniors, interns at leading hospitals, company officers, young farmers, congressmen, and architects.

Skill Effects, Tests, Readability and Other Areas

Reading tests were involved in a number of prediction-type and other studies. (E. g., 3; 14; 25; 26; 30; 39; 43; 78.) Inclusion of reading tests in prediction study test batteries was often, but not always, found to have a positive effect upon predictive power.

Ewald (26) found the "numerical ability" and "spelling" scores of the *Differential Aptitude Tests*, in combination, to be a better predictor of freshman success than was any single part score. The "average grades" of "compulsive readers" were found to be less predictable than were the grades of "non-compulsive readers" in a study of freshman engineering students (30). In another study (41), modification of administration and scoring procedures of a standard test resulted in indications of loss rather than indications of gain in a reading improvement program. Little (53) investigated the constancy, over a period of time, of pretest scores.

Cloze procedures, or modifications of such, were involved in several studies reported (33;54;59). In one study (54), already cited in a preceding section, influence of context upon word choice in prose seemed to decrease rapidly with the distance of the context; context with a proximity of over five words appeared to have relatively little effect. In another study utilizing cloze procedures (59), it was found that performance of subjects was adversely effected when materials presented contradicted beliefs of subjects.

Cassell (15) reported finding correlations of *Cooperative English Test*, C2, scores with "social insight" scores (based on a devised instrument) to be significant; but *Cooperative* scores were not correlated significantly with "leadership ability" scores. Brothers (8) found none of the MMPI scale scores of a group of Indiana University student teachers to be correlated significantly with reading test scores. Raygor (68) presented a further discussion of the progress he and his colleagues are making in the construction of measuring instruments based, in part, upon college students' self-descriptions of reading behavior.

Cummiskey (18) found the reading ability of college students to be a significant factor with respect to final test scores in a general psychology course. However, different experimental treatments, involving use of a tape recording as a supplementary study aid, were not found to be significant factors with respect to final scores of the various groups.

Groff (35) concluded that teaching parts of speech in English classes was not necessarily warranted since he found very few questions requiring this knowledge on college entrance examinations in English. Hotchkiss (48) found that vocabulary test scores discriminated significantly among "job applicants", "poor supervisors", and "better supervisors". A significant tendency toward higher scores on vocabulary tests as amount of education of volunteer applicants at the Minnesota State Employment Agency increased was also noted (49). Standlee and Popham (80) found that, among teacher variables related to job performance, reading of professional books and journals, along with membership in and attendance at committee meetings, were most consistently related to ratings of performance (MTAI scores).

The development of a new readability measure, the Devereaux Readability Index, has been described by Smith (77). Word difficulty and sentence length are the two factors on which the formula is based. The average number of characters per word, rather than a word list, is the criterion used for indications of difficulty of words. The Yoakum readability formula was applied to different types of occupational literature in another study (21). Materials involving the description of skilled trades were found to be more difficult than were materials describing the professions. Pace (66) analyzed the readability and human interest (Flesch formula) of twenty-five articles taken from books of readings in psychology. Articles were found to vary considerably with respect to both difficulty and human interest. While some improvement in current readings was noted, the majority of selections were considered as possibly being "difficult and dull". A critical analysis of some of the writings of Flesch, a readability expert, was presented by Gaffney (32). Doyle (23) analyzed five selected freshman English anthologies with the Flesch formula. The five anthologies were found to differ considerably with respect to the proportion of easy and difficult selections contained.

Morrow and Kinney (60) found that both psychiatric patients and control subjects regarded books and other reading materials on psychology and psychiatry as valuable and helpful. Malloy

(58) reported some results of polling a number of colleges and universities with respect to freshman reading lists. A list of 20 books which a college-bound students "might do well to read before he actually becomes responsible for them" was presented.

Bibliography

1. "ABPC Releases 1960 Survey of Book Sales Trends", ***Publishers Weekly,*** 180:25-29, July 19, 1961.
2. Acker, Ralph S., "Reading Improvement in Military, Government, and Business Agencies", *Journal of Educational Research,* 54:238-240, February, 1961.
3. Altus, William O., "Correlative Data For the First-Semester Grade Averages at the University of California, Santa Barbara", *Journal of Genetic Psychology,* 98:303-305, June, 1961.
4. Anderson, A. W., "Personality Traits in Reading Ability of Western Australian University Freshmen", *Journal of Educational Research,* 54:234-137, February, 1961.
5. Baker, Janet Bassett, "College Students and Their Assignments", *Journal of Educational Research,* 54:49-53, October, 1960.
6. Baxter, D. W., and A. A. Bailey, "Primary Reading Epilepsy", *Neurology,* 11:445-449, May, 1961.
7. Bliesmer, Emery P., and Alvin J. Lowe, "1960 Review of Research on College and Non-College Adult Reading". In Emery P. Bliesmer and Albert J. Kingston, Jr. (Eds.), *Tenth Yearbook of the National Reading Conference.* Milwaukee, Wisconsin: The Conference, 1961. Pp. 150-170.
8. Brothers, Wilbur, "Some Correlates With The Minnesota Multiphasic Personality Inventory", *Journal of Educational Research,* 55:36-38, September, 1961.
9. Brown, M. Alan, "Factors in the Continuing Education of College Alumni", *Adult Education,* 11:68-77, Winter, 1961.
10. Bryant, N. Dale, and Nel Barry, "The Relationship Between Interest and Reading Rate and Between Interest and Reading Comprehension". In Emery P. Bliesmer and Albert J. Kingston, Jr. (Eds.), *Tenth Yearbook of the National Reading Conference.* Milwaukee, Wisconsin: The Conference, 1961. Pp. 127-130.
11. Bursk, Edward C., "New Dimensions in Top Executive Reading", *Harvard Business Review,* 35:93-112, September-October, 1957.
12. Cantrell, Clyde Hull, "The Reading Habits of Ante-Bellum Southerners", *Dissertation Abstracts,* 21:1573, December, 1960.
13. Casey, T., and G. Ettlinger, "The Occasional 'Independence' of Dyslexia and Dysgraphia from Dysphasia", *Journal of Neurology, Neurosurgery and Psychiatry,* 23:228-236, August, 1960.
14. Cassel, Russel N., "Expected Achievement Beta Weights on SCAT (Form 1A) for College Freshmen", *Psychological Reports,* 6:401-402, June, 1961.
15. Cassel, Russel N., "A Construct Validity Study on a Leadership and a Social Insight Tests For 200 College Freshmen Students", *Journal of Genetic Psychology.* 99:165-170, September, 1961.
16. Coleman, Edmund B., and Insup Kim, "Comparison of Several Styles of Typography in English", *Journal of Applied Psychology,* 45:262-267, August, 1961.
17. Colvin, Charles R., "What is Being Done in College Reading Programs in Pennsylvania", *Journal of Developmental Reading,* 5:70-72, Autumn, 1961.

18. Cummiskey, Cletus Joseph, "The Use of Tape Recordings as a Supplementary Study Aid in General Psychology", *Dissertation Abstracts,* 21:821, October, 1960.

19. "Currents", ***Publishers' Weekly,*** 18:20, October 16, 1961.
Information", *Vocation Guidance Quarterly,* 9:87-88, Winter 1960-61.

20. "Currents", ***Publishers' Weekly,*** 119:16, May 1, 1961.

21. Diener, Thomas F., and Henry R. Kaczkowski, "Readability of Occupational Information", ***Vocational Guidance Quarterly,*** 8:87-88, Winter, 1960-61.

22. Dobin, Ruth M., "The Massapegua Story: A Pre-College Reading Program", *Journal of Developmental Reading,* 4:159-173, Spring, 1961.

23. Doyle, Marvyl, "Readability As A Key For Evaluating Junior College Freshmen English Anthologies," *Dissertation Abstracts,* 22:180, July, 1961.

24. Drake, James A., "The Effect of Urbanization on Regional Vocabulary," *American Speech,* 36:17-23, February, 1961.

25. Eells, Kenneth, "A Required Pre-Admissions Testing and Interviewing Program for Lowest Quarter (High School) Students: An Evaluation After Two Years," *College and University,* 37:52-66, Fall, 1961.

26. Ewald, Hattie Hoff, "The Relationship of Scores on the Differential Aptitude Tests to Scholarship in High School and College," *Dissertation Abstracts,* 22:800, September, 1961.

27. Flores, Ivan, "Methods for Comparing the Legibility of Printed Numerals," *Journal of Psychology,* 50:3-14, July, 1960.

28. Forbes, Robert, Richard Sparks, and Fred Rhodes, "Good and Bad Teachers," *Overview,* 2:53-54, March, 1961.

29. Fortenberry, Warren D., "Magazine and Newspaper Reading of Junior College Freshmen," *Journal of Developmental Reading,* 5:67-69, Autumn, 1961.

30. Frederiksen, Norman, and Arthur C. F. Gilbert, "Replication of a Study of Differential Predictability," *Educational and Psychological Measurement,* 20:759-767, Winter, 1960.

31. Fridian, Sister M., "Developmental Reading at St. Francis College," *Journal of Developmental Reading,* 5:63-65, Autumn, 1961.

32. Gaffney, W. G., "Can Rudolph (Flesch) Read?", *College English,* 23:52-53, October, 1961.

33. Garner, W. R., and D. H. Carson, "A Multivariate Solution of the Redundancy of Printed English," *Psychological Reports,* 6:123-141, February, 1960.

34. Gralowski, Anthony A., "An Analytical Study of the Out-of-School Activities of Selected Elementary School Teachers in Illinois," *Dissertation Abstracts,* 21:1421, December, 1960.

35. Groff, Patrick J., "Effect of Knowledge of Parts of Speech on College Entrance Examinations in California," *California Journal of Secondary Education,* 35:415-417, November, 1960.

36. Goldstein, Jacob, and Charles Winicle, "Experimental Study of Some Factors in the Recognition of Slogans", *Journal of General Psychology,* 65:339-351, October, 1961.

37. Gunderson, Doris Virginia, "The Influence of College Reading Instruction Upon Academic Achievement", *Dissertation Abstracts,* 21:1806, January, 1961.

38. Hampton, Peter J., "Speed Reading for Industrial Personnel", *Advanced Management,* 26:32-35, July-August, 1961.

39. Hansmeier, Thomas W., "The Iowa Tests of Educational Development As Predictors of College Achievement", *Educational and Psychological Measurement,* 20:843-845, Winter, 1960.

40. Hardy, Blanch Brewster, "A Follow-Up Study of Stillman College Graduates", *Dissertation Abstracts,* 21:1130-31, November, 1960.

41. Haridison, Richard Cheries, "Some Apparent Results of College Reading Improvement Programs Reconsidered in Terms of the Method of Measuring Improvement", *Dissertation Abstracts,* 22:152-3, July, 1961.

42. Heftel, Daniel L., "Gains in Reading Speed Compared With Academic Aptitude and Initial Rate", *Journal of Developmental Reading,* 4:210-211, Spring, 1961.

43. Hills, John R., Linda B Emory, Gretchen Franz, and Dolores Garcia Crowder, "Admissions and Guidance Research in the Uunversity System of Georgia", *Personnel and Guidance Journal,* 39:452-457, February, 1961.

44. Hinton, Evelyn A., "Dropout Rate and Academic Progress of Two Groups of Students Enrolled at the University of Wichita", *Journal of Developmental Reading,* 4:272-275, Summer, 1961.

45. Hinze, Helen K., "The Individual's Word Associations and His Interpretation of Prose Paragraphs", *Journal of General Psychology,* 64:193-203, January, 1961.

46. Hoar, Jere, "Book Reading in the Senior Years: The Habits and Preferences of 200 Mississippians", *Journal of Educational Sociology,* 34:137-144, November, 1960.

47. Hoar, Jere Richmond, "Reading, Listening and Viewing Behavior of the Aged: An Inventory of the Mass Communications Habits and Preferences of 220 Aged Persons in Oxford, Mississippi", *Dissertation Abstracts,* 20:4649-4650, June, 1960.

48. Hotchkiss, Sally McMurdo, "Word Knowledge of Industrial Supervisors", *Dissertation Abstracts,* 21:1247, November, 1960.

49. Hotchkiss, Sanford Norman, "Word Knowledge of An Industrial Population", *Dissertation Abstracts,* 21:1247-48, November, 1960.

50. "How Students Read; or Do They?", *Publishers' Weekly,* 180-37-38, July 10, 1961.

51. Kamano, Dennis K., and Janet E. Drew, "Selectivity In Memory of Personally Significant Material", *Journal of General Psychology,* 65:25-32, July, 1961.

52. Kroll, Erwin, "Smartest Teachers? They Quit Teaching", *Washington Post,* January 7, 1961, p. E2.

53. Little, Ellis Beecher, "Pre-Test and Re-Test Scores in Retention Calculation", *Journal of Experimental Education,* 29:161-167, December, 1960.

54. MacGintie, Walter H., "Contextual Constraint In English Prose Paragraphs", *Journal of Psychology,* 51:121-130, January, 1961.

55. McCord, Halleck, "Background Music: A Possible Aid in Teaching Adult Reading Improvement," *Journal of Developmental Reading,* 5:60-61, Autumn, 1961.

56. McDonald, Arthur S., "A Portrait of College and Adult Readers in an Urba Area". In Emery P. Bliesmer and Albert J. Kingston, Jr. (Eds), *Tenth Yearbook of the National Reading Conference.* Milwaukee, Wisconsin: The Conference, 1961. Pp. 131-140.

57. Mains, Mary F., and Charles C. Collins, "The Developmental Reading Course and Junior College Objectives," *Junior College Journal,* 31:123-129, November, 1960.

58. Malloy, Matthew T., "20 College Books for the Pre-College Student," *McCalls,* 87:117, September, 1960.

59. Manis, Melvin, and Robyn M. Dawes, "Cloze Score As A Function of Attitude," *Psychological Reports,* 9:79-84, August, 1961.

60. Morrow, Robert S., and Margaret M. Kinney, "The Attitudes of Patients Regarding the Efficacy of Reading Popular Psychiatric and Psychological Articles and Books," *Mental Hygiene,* 43:89-92, January, 1959.

61. Mattila, Ruth Hughes, "An Experimental Study of a Basic Communications Skills Program for Freshmen at New Mexico Western College," *Dissertation Abstracts,* 21:3022-3023, April, 1961.

62. Miller, Donna Mae, "The Relationship Between Some Visual-Perceptual Factors and the Degree of Success Realized by Sports Performers," *Dissertation Abstracts,* 21:1455, December, 1960.

63. Neilander, Ruth, "Habits of Executives," *Special Libraries,* 52:85-86, February, 1961.

64. "News and Notes," *Ca,* 2:19-20, February, 1961.

65. Newton, Eunice Shaed, "Verbal Destitution: The Pivotal Barrier to Learning," *Journal of Negro Education,* 29:497-499, Fall, 1960.

66. Pace, Zietta S., "Flesch Formulas Applied to Current Readings," *Psychological Record,* 11:133-137, April, 1961.

67. Popham, W. James, "The Validity of SSHA with Scholastic Over-Achievers and Under-Achievers," *Educational Research Bulletin,* 39:214-215, November, 1960.

68. Raygor, Alton L., "Measurement in Reading". In Emery P. Bliesmer, and Albert J. Kingston, Jr. (Eds.), *Tenth Yearbook of the National Reading Conference.* Milwaukee, Wisconsin, 1961. Pp. 108-112.

69. Roossinck, Eather Pauline, "Purposeful Reading of Science Materials by Scientists and Children," *Dissertation Abstracts,* 21:3382, May, 1961.

70. Sayles, Daniel G., "Recent Research in Reading: Implications for College and Adult Programs," *Journal of Developmental Reading,* 4:217-227, Summer, 1961.

71. Schiavone, James, and E. Oliver Camacho, "A Reading Perspective," *Journal of Developmental Reading,* 4:77-86, Winter, 1961.

72. Schneyer, J. Wesley, "Problems of Concentration Among College Students," *The Reading Teacher,* 15:24-37, September, 1961. (See also *School and Society,* 89:121-123, March 11, 1961.)

73. "Send Me a Man Who Reads," International Paper Company, New York, 1961.

74. Shaw, Philip B., "Integration of Reading Instruction with 'Regular' College Offerings." In Emery P. Bliesmer, and Albert J. Kingston, Jr. (Eds.),

Tenth Yearbook of the National Reading Conference. Milwaukee, Wisconsin, The Conference, 1961. Pp. 108-112.

75. Shores, J. Harlan, "Reading of Science for Two Separate Purposes as Perceived by Sixth Grade Students and Able Adult Readers," *Elementary English,* 37:461-468, November, 1961.

76. Singer, Henry A., "A Report on the Recent S.A.M. Survey," *Advanced Management,* 25:25, November, 1960.

77. Smith, Edgar A., "Dexereaux Readability Index," *Journal of Educational Research,* 54:298-303, April, 1961.

78. Smith, Stanley Keck, Jr., "A Factor Analytic Study of the Rosenzweig Picture-Frustration Study as a Predictor of Academic Achievement," *Dissertation Abstracts,* 22:647-48, August, 1961.

79. Stewart, Daniel K., "Comparison of the Result of a Logical Questionnaire with Reading Comprehension, Verbal Ability, and Grade Point Averages," *Journal of Psychology,* 51:289-292, April, 1961.

80. Standlee, Lloyd S., and W. James Popham, "Teacher Variables Related to Job Performance," *Psychological Reports,* 6:548, June, 1961.

81. Strong, Lydia, "How Much Is Too Much? The Burden of Executive Reading," *Management Review,* 46:60-70, January, 1957.

82. Summers, Edward G., "Dissertations in College Reading: 1918 to October, 1960," Journal of Developmental Reading, 4:268-269, Summer, 1961.

83. Swanson, Edward O., "A Follow-Up Study of College Trained Versus Non-College Trained High-School Graduates of High Ability," *Dissertation Abstracts,* 14:499-500, March, 1954.

84. Taylor, Phillip H., "A Comparative Study of Library Use in Four Training Colleges for Teachers," *Educational Librarians' Bulletin,* 9:2-14, Autumn, 1960. (Cited in *Library Science Abstracts* 12:1, January-March, 1961.)

85. Thorndike, Robert L., and Elizabeth Hagen, "Men Teachers and Ex-Teachers: Some Attitudes and Traits," *Teachers' College Record,* 62:306-316, January, 1961.

86. Torrance, E. Paul, and Judson A. Harmon, "Effects of Memory, Evaluative, and Creative Reading Sets on Test Performance," *Journal of Educational Psychology,* 52:207-214, August, 1961.

87. Weatherford, John, "Student Library Habits," *College and Research Libraries,* 22:369-391, September, 1961.

88. Wood, Roger L., "Attrition as a Criterion for Evaluating Non-Credit College Reading Programs," *Journal of Developmental Reading,* 5:27-35, Autumn, 1961.

89. Wright, Eugene Stewart, "An Investigation Into The Effect of Reading Training On Academic Achievement in the College of Agriculture, Forestry, and Home Economics," *Dissertation Abstracts,* 21:2955-2956, April, 1961.

90. Ziemann, Norman Carl, "A Study of the Communication Courses in Selected Colleges and Universities in the United States," *Dissertation Abstracts,* 21:2828-2829, March, 1961.

New Challenges and Old Problems in College-Adult Reading

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A logical approach to discovering both problems and challenges in the area of college adult reading is to review all of the yearbooks published by the National Reading Conference and its parent organization, The Southwest Reading Conference. A review of the total literature provides a quite different orientation than is likely to be gained by reading each individual conference or yearbook as a separate whole.

The procedure used here was to select one topic or problem, and follow it through the various yearbooks. This permits one to focus a bit more sharply on a particular issue. It is inevitable that anyone reading the total record will find reoccurring themes which can conceivably be interpreted as expressions of doubt or possible frustration concerning certain facets of college-adult reading. In one sense what we are attempting is a critique, and it is hoped that the issues raised might be viewed as problems by most of the persons in the college-adult reading movement.

In dealing with the first problem we will attempt to identify the relationship between *diagnosis* and the planning or development of college-adult reading programs. The problem as stated in question form would be as follows: "Are we using the results of diagnosis to develop or build college-adult reading programs to fit the individual needs of students?" You might be thinking, "Why raise this as an issue? Haven't we talked about it enough in the past?" The point is we have discussed it a great deal, always in the context that we need a very careful diagnosis of each individual who enrolls in college or adult programs and that we need this careful diagnosis so that we can use it to design or build reading programs which fit the specific needs of enrollees.

As we study the yearbooks and read the articles which bear on this topic we find a constant reiteration of the point that we diagnose so that we can adapt programs to student's needs. In the interest of economy only a few illustrative examples are cited.

> One of the first essential principles in evaluation is that we must have a definite purpose for the evaluation . . . it is here submitted that one of the main purposes in evaluation should be the improvement of instruction. (16:20)

> We appraise or diagnose in order to get a proven picture of the status of development of the individual at a particular time. This picture, obtained through diagnosis, is used as a guide to aid the individual toward more efficient future development. (20:65)

> A diagnosis of reading difficulties should begin with a study of the student's body, and that teachers need to know the bodily maturity of every pupil under their guidance. (13:100)

It should be kept in mind that we are not taking issue with the concept that thorough diagnosis has a great potential value. We can agree with Stroud's point, that "In a sense all improvement in instruction depends upon measurement," (19:77) and still question whether measurement is actually *used* to develop and modify a program. Throughout the years some new and more complicated factors have been suggested as meriting attention in diagnosis. One of these is that personality factors must be taken into account in diagnosis so that the knowledge thus gained can be applied in the actual reading improvement programs. We find such concepts expressed as that "diagnosis and interview should identify other problems present in student's lives which may be related to reading," that "work must be based on interview and personality analysis," and that "personality dimensions should be taken into account both in testing and in conducting reading improvement programs".

The point is that if one carefully studies the literature on college-adult reading and the practices, goals, and reported results which are described, he will find that in a vast number of cases our use of standardized tests is nothing more than an educational ritual. There is no question but that in a large percent of the programs test results are not used for the purpose of adapting or building instructional procedures to fit the individual needs of students taking the course. Furthermore, the widespread administration of standardized tests has not resulted in any appreciable modification or changes in instruction in college-adult reading programs—at least reports of such changes or modifications can not be found.

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A series of hypotheses are suggested here: First, our preoccupation with diagnosis grows out of our respect for the principle that diagnosis should serve as a blueprint for instruction; second, most of us know that this principle is meaningful at the elementary level where the instructional program does make a serious effort to deal with practically all facets of the total reading process; third, at the college-adult level our instructional programs, thus far developed, have dealt with a very limited number of discrete facets of reading such as *rate, vocabulary, and study skills,* with some lip service paid to critical reading; therefore, we cannot say in good conscience that diagnosis is used to develop instructional programs unless we assume that the reading needs of all students are met by the limited skills just mentioned.

As we discussed our second problem we will also be referring to data which tend to question whether our concern with diagnosis has had any salutory effect on reading programs. Our second problem is also stated as a question: "Are college-adult reading programs primarily concerned with "rate" and are they overly machine-oriented?"

Data for answering this question can be found in the descriptions of programs operating in colleges, industry and the military. In the past seven years a total of twenty articles in the yearbooks deal with such programs. In addition, at least a half dozen more deal with the use of mechanical devices.

Several descriptions of reading improvement courses in industry are found in the yearbooks. One such program in the Fifth Yearbook describes a course labeled "Reading Speed and Comprehension". Its purpose is to help personnel meet on-the-job requirements and train them to take on additional responsibility. The only materials mentioned were the Viewlex, Timex and Controlled Reader. The only result noted was a 106% gain in rate from a mean of 230 w.p.m. at the start of the program. It was pointed out that motivation is important and that individuals must be sold on the idea they can read faster. (9)

Another program reviewed in the same yearbook seemed to be concerned exclusively with rate. It was reported participants retain 50% of their initial gain. The author stated: "We use the same gadgets that most people use: Pacers for individual work, a speed reader and the tachistoscope for group work". No other facet of the instructional program was mentioned. (7)

In a resumé of the program at General Motors, the data presented relative to program were not explicit beyond this: Three programs A-B-C were set up. Program A involved *group* and *individual* use of mechanical equipment. Program B involved *group* use of mechanical equipment only. Equipment listed was the film "Speeding your Reading", reading rate accelerators, reading films, and the tachistoscope. Program C used *no* mechanical equipment. This group listened to lectures, had discussions and read exercises in manuals. Pre-and post-course scores were obtained with a reader index utilizing W.P.M. and percentile scores in comprehension. The scores of the non-machine group were superior but differences were not statistically significant. (10).

There were two lengthy reports which deal with surveys of reading improvement courses in industry. These closely parallel each other and no doubt overlap to some extent; so we will deal with only one of them. The data relate to 132 responses to a questionnaire consisting of some 23 questions such as: Do you have a reading program? Have you ever had one? Do you plan to start one? What is the enrollment? Who conducts your program? What materials are used?

Twenty-six respondents reported having a program in operation. In regard to equipment listed, 12 used pacers, 27 used tachistoscopes (which is one more than there were programs), 16 used reading controllers or other devices, and 21 used reading films. Added up, this gives an almost exact average of three such items per course. In answering the question "Who conducts your program"? 14 listed consultants, 16 used university specialists, and 22 utilized personnel from their own training departments. These figures do not coincide with the number of respondents reporting programs so no doubt there is some overlap. Assuming errors in the data were distributed evenly, 55% of the programs used consultants or university specialists to run their programs. (11)

These data are cited for two purposes. First, it appears that we in the college area must share some of the glory or the guilt in regard to other adult programs; and, second, we will in a moment discuss the need for a more critical approach to the matter of research.

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There are relatively few reports of government (and military) reading programs; and these are usually quite explicit in regard to goals and methods of achieving them. In the fifth yearbook, reporting on the "Air Force Reading Training in the Pentagon", the author states that the training, " . . . attempts to accomplish course objectives and meet varying individual needs through a series of short talks, personal interview, reading pacer practice, timed and untimed workbook exercises, tachistoscopic training, handout material, and reading training films". (4:78)

The following yearbook contains the article, "Techniques and Procedures in Government Reading Programs", which summarizes twenty-three programs maintained in the Washington area. It is stated that the course outline of the Pentagon reading improvement laboratory is followed. Techniques utilized are one-half hour sessions using reading rate controllers; and one-half hour sessions divided between the tachistoscope and reading films. In addition there is some instruction related to particular factors found in the various government agencies in that practice reading deals with directives, reports, regulations, as well as management, technical and marketing developments. In conclusion, the author stated that the government reading improvement laboratories owed no small debt to various college programs from whom they have received ideas for programs. (2)

Last year at this conference in the paper, "Reading Improvement In Government", the author stated:

> In general one could say that reading improvement in government patterns itself pretty closely on existing college and university programs . . . The objective of training is to make the employee more effective on the job . . . Moreover the students themselves have a very practical attitude toward reading improvement. Most of them call it "speed reading" or "rapid reading", and nine out of ten on a pre-training questionnaire will express their reading problem as the need to read faster . . . In other words, a successful training program in government or industry must show some kind of tangible results which can be readily translated into a supposed monetary gain. (18:5-6)

Turning to the content *of* and the materials stressed in college reading programs one might suspect that it would be necessary to devote a quite lengthy discussion to this topic. However, the more one reads in this area the more obvious it becomes that neither wide reading or intensive reading would lead one to question the validity of the various reports found in the yearbooks, which in essence state that college programs are very similar, and that on the whole they are rate oriented and machine centered.

For instance, in a survey of 21 Junior Colleges 100 per cent of the respondents indicated their program included individual instruction in reading. But further study of the data reveals that the individual work referred to was incorporated in the use of such materials as tachistoscopic drill, reading accelerators, teaching films, and the reading of workbooks or manuals. (1)

In a survey of college programs reported in the Seventh Yearbook, the author found it necessary to devote almost two printed pages to simply listing mechanical aids and "packaged" reading programs which relied heavily on such aids. In regard to the factor he wrote: "As lengthy as this array may be—it is by no means exhaustive—anyone entering the field (college reading) is faced with a formidable array of mechanical devices". (5:17)

The Eighth Yearbook contains a discussion of the use of workbooks and mechanical aids in college programs. Data are cited for 214 respondents as to their use of ten different mechanical devices. These were checked 310 times as being used for motivational purposes and 306 times as being used for training. Undoubtedly there is some overlap in these two categories and the data are cited here as being suggestive of the extent to which mechanical devices are used in college programs. (8)

Staiger, in a paper titled, "Significant Elements in Reading Programs" concluded his discussion of machines and their use in these words:

> On the debit side of the ledger I can find several elements which bear close scrutiny. Perhaps some of these are being changed, but I cannot notice tendencies which can correctly be labeled trends in the right direction. (17:21)

It should be pointed out that if one restricts his reading to the verbal description of goals and philosophy of college reading programs the problem does not appear to be acute. We often find lofty but vague goals, a strong affinity expressed for individual instruction, and a recitation of sound psychological principles. But when enrollments are checked against available personnel it becomes obvious that group instruction is practiced; and, as we have pointed out, the materials used strongly suggests an overemphasis on mechanical devices and instruction dominated by concern with rate. It might be added that in the majority of reports mechanical devices are not appendages nor are they used as exercises on the periphery of the program; rather, they seem to be close to the heart of the program—a major or essential part.

It seems that throughout the yearbook one can detect a feeling which might be characterized as a sort of ambivalence toward mechanical devices and their efficacy in college reading programs. One will note that each of the predictions of future trends in college-adult reading express either the conviction or the hope that we will be moving away from machine-centered, rate-oriented programs.

This is not something of extremely recent origin. Back in the Fourth Yearbook, Sommerfeld expressed concern about several trends:

> Concern is also expressed about the rash of articles appearing in the current popular periodicals. The laymen reads, and is influenced by, this popular literature, much of which, widely disseminated, is not psychologically sound. (15:19)
>
> There is the fear that reading programs at the college and adult levels may be entering—if not already in—a situation which might be likened to a fad stage. (15:18)

Certainly, if Sommerfeld's concerns were premature in 1954 we have every reason to be apprehensive today. A week never passes but what one receives in the mail a brochure describing some new gadget designed to help in improving rate of reading. Thumb-latch tachistoscopes, motor-driven shutters, gravity-pulled bars, slit cut in cardboard—these soon to be followed by teaching machines. No one can name all of the packaged reading kits on the market (each of which has a gimmick which equates reading with eye ball calisthenics.

The public is deluged with tremendously overly-simplified discussions of reading improvement. Free enterprise has stolen the ball and is dashing out of the stadium with it. And as mentioned before, everyone states they owe a lot to college reading programs. The journals, *The Reading Teacher* and *Elementary*

English, which are primarily professional journals for elementary teachers, are accepting full page ads for Rateometers, tachistoscopic devices and assorted packaged reading programs.

Reaction is setting in. Last fall, *Saturday Review* carried an editorial against rapid reading. In a later issue the editor-in-chief of a large commercial publishing firm indicated he hoped this editorial would appear in future anthologies. "Speed Reading" has, in the public mind, become a synonym for college-adult reading programs.

Our next problem and challenge may be stated as follows: "Have we slighted *comprehension*, or critical reading or the higher intellectual reading skills?" If we look at the total content of our yearbooks it would appear that the answer has to be *yes*. In the past seven years there has not been a single presentation which was devoted to the description or illustration of concrete techniques or procedures for teaching critical reading. Papers by Cora Fischer (3) and Donald E. P. Smith (14) might be considered exceptions. Although these were primarily theoretical each contained suggestions for teaching critical reading. In addition to these papers there have been four other excellent yearbook entries which dealt primarily with theory related to critical reading.

During these years of almost total eclipse for critical reading we have had numerous presentations which dealt concretely with other facets of reading, "An Evaluation of Selected Methods of Using Reading Pacers", "A Rationale for Mechanical Methods of Improving Reading", "A Way to use Reading Pacers", etc. In addition, some twenty descriptions of college or adult programs were articulate as to techniques for improving rate but did not contain a single concrete technique dealing with comprehension or critical reading.

It would seem that the old problem and the new challenge here is to find a way of sharing ideas on how to teach critical reading. One suggestion: At some future conference, one session might be devoted to a series of 15-minute demonstrations of concrete procedures which get at some facet of critical reading. The demonstrators could use 15 to 20 of the delegates as a spontaneous unrehearsed demonstration class. The demonstrator would provide every delegate in attendance a copy of his material. It is obvious we would have to deal with short exercises of one page or less, not lessons on how to read a book or a trilogy. People demonstrating will naturally select the most unique and challenging technique in their entire repertoire.

The fourth problem and challenge deals with *Research* in college and adult reading. We might lead into this discussion with a few questions.

> First, in consideration of the present status of college adult reading is there a real need for solid research in this area? It would appear the answer is yes.
>
> Second, has the research of the past decade had any significant impact in college reading programs? There is little evidence to support the affirmative.
>
> Third, why is this so?

The answers to our questions could be based at least in part on the fact that research done in college-adult reading is extremely fragmented—probably as much so as in any segment of education. The reviews of research presented in each yearbook dramatically demonstrates this point. Also, a study of the *research* found in the yearbooks, (not to be confused with the *reviews* of research), will emphasize this point equally emphatically. Fragmentation, or the study of isolated parts of the whole is not our only problem in the area of research. The inadequate design of studies, lack of clarity and precision in reporting, and conclusions not always being compatible with the data are other problems.

How might these various problems be dealt with? In regard to overcoming fragmentation we might suggest a different approach to organized research. Let us assume the key individuals in reading at several universities would work out synchronized, cooperative, longitudinal research projects. As a major research topic let us consider "How To Teach for Critical Reading".

Doctoral candidates at a particular university or college might investigate how college students can be taught to read critically on selected controversial issues. Or investigators at several universities might team up to attack the problem on a broader front by working out a series of experiments which mesh or dovetail. A topic which presented itself this year was Fallout and Survival and the effectiveness of fallout shelters. Enough good material could have been accumulated from just three sources—*Life* magazine, Norman Cousins in *Saturday Review*, and various issues of *The Bulletin of the Atomic Scientist.*

Other research directors and their students might explore the possibility of teaching a skill such as *drawing inferences.* Here one might wish to involve a teacher of logic, a physical scientist along with a reading specialist to work out a research design. Studies on the *interpretation of literature* might be worked out jointly by teachers of English, reading specialists and a statistician. While it is true that each individual piece of research might still deal with only a major segment of critical reading but taken together they would provide a broad basis for instructional techniques.

A final suggestion relative to research deals with *evaluation* of studies. One of the features of this annual meeting is a review of research on college and adult reading. These reviews are of interest and of great value. Yet, in reading these summaries of research it seems to me that the conclusion is inescapable that regardless of the merits of certain individual studies the sum total of research in college and adult reading is of relatively low calibre. On a national scale we seem to be repeating the same studies over and over without appreciably improving study design or involving adequate controls. It seems we are becoming extremely tolerant of weakness in research design, vagueness about actual procedures carried out, and generalizations which go beyond what the reported data will support.

This conference might profit from going one step beyond the present excellent reviews, and inaugurate a symposium which would *evaluate* certain research studies. As a point of departure the discussion might center around the two or three pieces of research which are considered the most significant reported in the past year. In regard to research reported for the first time at this conference, copies could be sent in advance to two or three individuals who might serve as critics or discussion leaders following the presentation. These are possibilities which it seems would guide us into more significant research orientation.

Our last problem and challenge is:

> "Have we shown a marked lack of interest in high school reading programs and have we abdicated responsibility in this area"?

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The answer is probably *yes!* The past seven yearbooks contain only one paper on the topic of high school reading. This was, "The Relationship of high school and college reading programs", in which Kingston cautioned us to remember that reading is a developmental process and that a large percent of high school students are deficient in a number of important skills.. (6) In the Seventh Yearbook, Spache, in discussing "Improving Reading Skills in the Subject Matter Areas", pointed out that high school students feel they need training in a number of concretely identified skills in which they are not receiving training. (16)

In a number of other instances writers have lumped high school and college students together saying they both need this or that instruction. Certainly, this can hardly be construed as coming to grips with reading problems in the high schools. One of the best statements of the problem is found in the *Proceedings of the First Annual Meeting of the Southwest Reading Conference.* There the Coordinator of Instruction of a large public school system, noting that all high school teachers were formerly college students, hoped that, while in college, students would learn (1) that there are many kinds of reading and that a person can be proficient in some of them without being proficient in others, (2) that these students themselves would learn how to read critically and with discrimination, and (3) that those who became high school teachers of reading would have learned that college methods cannot be transferred indiscriminately into the high school. (12)

In conclusion it should be pointed out again that the intent in identifying the five problems was not to be critical of any particular individual program but rather to cite problems which appear to be almost universal in college-adult reading. If the issues we have discussed really are problems they are also real challenges to the entire college-adult reading movement.

Thus, if we do not use diagnosis as the basis for developing individualized adult reading instruction, we should not accumulate a body of literature which intimates that we do. If our programs are primarily machine and rate oriented we should either accept and justify such programs, or else put energy into working out better balanced programs. If we do the latter, it would be hoped that new practices and procedures would be justified and modified on the basis of sound research and evaluation. If we believe that adult reading is a developmental process we should re-examine our aloofness to high school reading programs because in essence this area is also adult reading. If the people who attend this conference permit a vacuum to develop in high school programs that vacuum will be filled by a rush of mechanical gadgets. We can rest assured that the brochures describing these gadgets will state that the manufacturer owes much to established college reading programs.

References

1. Andrews, Wade, "Junior College Reading Programs: Goals and Techniques". In Oscar S. Causey (Ed.), *Fifth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian University Press, 1957. Pp. 102-113.
2. Dowell, R. Lawrence, "Techniques and Procedures in Government Reading Programs". In Oscar S. Causey (Ed.), *Sixth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian University Press, 1956. Pp. 110-114.
3. Fischer, Cora I., "Extending Comprehension Skills". In Oscar S. Causey and William Eller (Eds.), *Eighth Yearbook of the National Reading Conference.* Fort Worth, Texas: Texas Christian University Press, 1959. Pp. 60-66.
4. Fulker, Edmund N., "Air Force Reading Training in the Pentagon." In Oscar S. Causey (Ed.), *Fifth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian University Press, 1956. Pp. 77-79.
5. Fulker, Edmund N., "A Decade of Progress in College and Adult Reading Improvement". In Oscar S. Causey, *Seventh Yearbook of National Reading Conference for Colleges and Adults.* Fort Worth, Texas: Texas Christian University Press, 1958. P. 17.
6. Kingston, Albert J., Jr., "Integrating the Reading Program into the Curricula". In Oscar S. Causey and Emery P. Bliesmer, (Eds.), *Ninth Yearbook of the National Reading Conference for Colleges and Adults.* Fort Worth, Texas: Texas Christian University Press, 1960. Pp. 107-109.
7. McMillan, John W., Jr., "Reading Improvement in Business". In Oscar S. Causey (Ed.), *Fifth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian Uinversity Press, 1956. Pp. 82-83.
8. Miller, Lyle L., "Current Use of Workbooks and Mechanical Aids". Oscar S. Causey, and William Eller, (Eds.), *Eighth Yeabook of the National Reading Conference.* Fort Worth, Texas: Texas Christian University Press, 1959. Pp. 67-75.
9. Oakes, J. E. Jr., "Chance Vaught Aircraft Reading Training Program". In Oscar S. Causey (Ed.), *Fifth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian University Press. Pp. 80-81.

10. Patterson, Harry O., "A Reading Improvement Program in Industry". In Oscar S. Causey (Ed.), *Sixth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Forth Worth, Texas: Texas Christian University Press, 1957. Pp. 102-113.

11. Patterson, Harry O., "Survey of Reading Improvement Programs in Industry". In Oscar S. Causey (Ed.), *Sixth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian University Press, 1957. Pp. 121-133.

12. Sellars, David, "Possible Contributions by Colleges to High School Reading Programs", *Proceedings of the First Annual Meeting of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian University Press, 1952. P. 19.

13. Shepherd, Carrie, "Other Physical Disabilities in Relation to Reading: Goals and Techniques Used in Treatment". In Oscar S. Causey (Ed.), *Fifth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian University Press, 1956. P. 100.

14. Smith, Donald E. P., "Reading Comprehension: A Proposed Model". In Oscar S. Causey and Emery P. Bliesmer, (Eds.), *Ninth Yearbook of the National Reading Conference for College and Adults.* Fort Worth, Texas: Texas Christian University Press, 1960. Pp. 21-27.

15. Spache, George D., "Improving Reading Skills in the Subject Matter Areas". In Oscar S. Causey, (Ed), *Seventh Yearbook of the National Reading Conference for Colleges and Adults.* Fort Worth, Texas: Texas Christian University Press, 1958. Pp. 30-38.

16. Sommerfeld, Roy E., "Problems in Evaluating College Reading Programs". In Oscar S. Causey and Albert J. Kingston, Jr., (Eds.), *Fourth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian University Press, 1955. Pp. 17-27.

17. Staiger, Ralph C., "Significant Elements in Reading Programs". In Oscar S. Causey, (Ed.), *Seventh Yearbook of the National Reading Conference for Colleges and Adults.* Fort Worth, Texas: Texas Christian University Press, 1958. P. 21.

18. Stevens, George L., and Edmund N. Fulker, "Reading Improvement in Government". In Emery P. Bliesmer and Albert J. Kingston (Eds.), *Tenth Yearbook of the National Reading Conference for Colleges and Adults.* Milwaukee, Wisconsin: The Conference, 1961. Pp. 1-8.

19. Stroud, James B., "Background of Measurement in Reading Improvement. In Oscar S. Causey, and William Eller, (Eds.), *Eighth Yearbook of the National Reading Conference.* Fort Worth, Texas: Texas Christian University Press, 1959. P. 77.

20. Triggs, Frances O., "Appraisal of Reading Skills in Relation to Effectiveness of Teaching and Learning Techniques". In Oscar S. Causey (Ed.), *Fifth Yearbook of the Southwest Reading Conference for Colleges and Universities.* Fort Worth, Texas: Texas Christian University Press, 1956. P. 65.

Persons in Attendance at the Eleventh Annual Meeting of the National Reading Conference, Texas Christian University,

December 7-9, 1961

ALABAMA		
Mrs. Barbara F. Edwards	Auburn University	Auburn
CALIFORNIA		
Jack Holmes	University of California	Berkeley
Jody J. Stanchfield	Occidental College	Los Angeles
Helen M. Thompson	Chapman College	Orange
John V. Thompson	Chapman College	Orange
COLORADO		
T. L. Shaw	Mesa Junior College	Grand Junction
Mrs. T. L. Shaw	Mesa Junior College	Grand Junction
CONNECTICUT		
Charles Letson	Reading Consultant Services	New Haven
DISTRICT OF COLUMBIA		
Jerry Willmore	Grad. School, U. S. Dept. of Ag.	Washington
FLORIDA		
C. Y. Melton	University of Florida	Gainesville
George D. Spache	University of Florida	Gainesville
James Schiavone	Dade County Jr. College	Miami
Florence Sherbourne	Florida Presbyterian College	St. Petersburg
Ailene Thompson	Florida State University	Tallahassee
Rose Spicola	University of Southern Florida	Tampa
GEORGIA		
Albert J. Kingston, Jr.	University of Georgia	Athens
ILLINOIS		
George L. Watson	The John Marshal Law School	Hinsdale
INDIANA		
George Schick	Purdue University	W. Lafayette
IOWA		
Paul Blakely	Drake University	Des Moines
Joseph A. Fisher	Drake University	Des Moines
William Eller	State University of Iowa	Iowa City
Sue Penney	State University of Iowa	Iowa City
James B. Stroud	State University of Iowa	Iowa City
Stan Thalberg	State University of Iowa	Iowa City
KANSAS		
Mary Margaret Williams	Arkansas City Junior College	Arkansas City
Henry P. Smith	University of Kansas	Lawrence
Maurice D. Woolf	Kansas State University	Manhattan
Mary Lee Douglas	Douglas Child Development Center	Wichita
Evelyn A. Hinton	University of Wichita	Wichita
LOUISIANA		
Sarah Nell Taylor	Northeast Louisiana State	Monroe
MICHIGAN		
E. Coston Frederick	Ferris Institute	Big Rapids
Homer L. J. Carter	Western Michigan University	Kalmazoo
Dorothy McGinnis	Western Michigan University	Kalmazoo
MINNESOTA		
Alton Raygor	University of Minnesota	Minneapolis
Iver Bogen	University of Minnesota	Morris
MISSISSIPPI		
Ralph Staiger	University of Southern Mississippi	Hattiesburg
Calvinia Switzer	Hinds Junior College	Raymond
Mildred Ball	University of Southern Mississippi	Hattiesburg

MISSOURI		
Mrs. Ruth Rogers Smith	Washington University	St. Louis
NEBRASKA		
Harry W. Johnson	University of Omaha	Omaha
Gilbert Kelly	University of Omaha	Omaha
NEW YORK		
Phillip Shaw	Brooklyn College	Brooklyn
Helen Frackenpohl	Educational Developmental Labs.	Huntington
Gene Matthews	Educational Developmental Labs.	Huntington
Stanford Taylor	Educational Developmental Labs.	Huntington
Fred B. Davis	Hunter College	New York City
NORTH CAROLINA		
Wendell Weaver	Campbell College	Buies Creek
OHIO		
R. B. Adams	National Reading Research Found.	Cleveland
Esther J. McConihe	Western Reserve University	Cleveland
Patricia Donisi	University of Dayton	Dayton
OKLAHOMA		
Louie E. Harris	Oklahoma College for Women	Chickasha
Larry Hafner	Southeastern Oklahoma	Durant
Wayne Lee	Central State College	Edmond
A. M. Wickstrum	Panhandle A. & M. College	Goodwell
Arthur Heilman	Oklahoma University	Norman
Bernard Belden	Oklahoma State University	Stillwater
Mavis Martin	Oklahoma State University	Stillwater
Darrel D. Ray	Oklahoma State University	Stillwater
Earl C. Denney	Earl C. Denny & Associates	Tulsa
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Aileen Griffin	Dallas Independent School District	Dallas
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Dorothy Bracken	Southern Methodist University	Dallas
Hazel Carroll	Southern Methodist University	Dallas
Wm. J. Robinson	California Testing Bureau	Dallas
Rev. Joseph Tremonti	University of Dallas	Dallas
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Mrs. Melba Gates	Sam Houston State	Huntsville
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